Table 4:: 4999 SDSS-DR2 catalog of stars

| SDSS-DR2 spectra | ANN class | Chi-square value |
|------------------|-----------|------------------|
| spSpec-51658-0282-110 | B3V | 0.00022874 |
| spSpec-51928-0291-105 | B2III | 0.00027330 |
| spSpec-51673-0313-519 | O5V | 0.00029920 |
| spSpec-51691-0350-366 | B5III | 0.00030136 |
| spSpec-51942-0301-626 | O5.5V | 0.00029608 |
| spSpec-51984-0296-366 | B3V | 0.00029908 |
| spSpec-51630-0266-233 | A7V | 0.00034089 |
| spSpec-51692-0339-051 | F0III | 0.00034837 |
| spSpec-51663-0307-253 | A7V | 0.00039368 |
| spSpec-52017-0366-397 | F0III | 0.00042596 |
| spSpec-51691-0350-044 | A9V | 0.00043968 |
| spSpec-51942-0301-409 | A7V | 0.00043690 |
| spSpec-51994-0293-045 | A7V | 0.00044160 |
| spSpec-51663-0315-640 | B4III | 0.00045218 |
| spSpec-51691-0342-435 | B9III | 0.00045675 |
| spSpec-51703-0353-570 | F0IV | 0.00045788 |
| spSpec-51821-0359-198 | F0V | 0.00046321 |
| spSpec-51959-0283-021 | F0V | 0.00046135 |
| spSpec-51662-0308-343 | F4V | 0.00047088 |
| spSpec-51788-0355-413 | F0III | 0.00047199 |
| spSpec-51908-0277-568 | F0V | 0.00047498 |
| spSpec-51909-0276-426 | F3V | 0.00048153 |
| spSpec-52000-0335-478 | O6.5III | 0.00048330 |

| SDSS-DR2 spectra | ANN class | Chi-square value |
|------------------|-----------|------------------|
| spSpec-51658-0282-539 | A6V | 0.00040037 |
| spSpec-51662-0308-005 | A7V | 0.00040312 |
| spSpec-51692-0339-370 | F0III | 0.00040924 |
| spSpec-51990-0310-307 | A5V | 0.00041014 |
| spSpec-51990-0340-284 | A7V | 0.00040763 |
| spSpec-51789-0352-247 | B5III | 0.00041842 |
| spSpec-51984-0279-228 | O7.5V | 0.00042054 |
| spSpec-51633-0268-008 | O6.5III | 0.00042562 |
| spSpec-51637-0306-194 | A8III | 0.00043082 |
| spSpec-51692-0339-101 | A9V | 0.00052558 |
| spSpec-51699-0349-594 | A7V | 0.00052859 |
| spSpec-51792-0354-206 | A9V | 0.00052995 |
| spSpec-51985-0295-545 | O5V | 0.00053031 |
| spSpec-51994-0309-350 | A6V | 0.00053227 |
| spSpec-52294-0327-333 | A7V | 0.00053350 |
| spSpec-51609-0292-582 | A6V | 0.00054432 |
| spSpec-51609-0292-582 | A6V | 0.00054432 |
| spSpec-51909-0276-426 | A6V | 0.00054432 |
| spSpec-51609-0292-329 | A6V | 0.00054432 |
| Source              | Spectral Type | Value  | Source              | Spectral Type | Value  |
|--------------------|---------------|--------|--------------------|---------------|--------|
| spSpec-51780-0351-638 | F0IV          | 0.00048841 | spSpec-51691-0342-518 | A0I           | 0.00054997 |
| spSpec-51942-0301-315  | A6V            | 0.00049456 | spSpec-51699-0349-477  | F3IV          | 0.00054928 |
| spSpec-51994-0309-313  | A2V            | 0.00049425 | spSpec-51703-0353-243  | A9V           | 0.00055027 |
| spSpec-51658-0282-117  | A2V            | 0.00050276 | spSpec-51792-0354-451  | A1V           | 0.00054832 |
| spSpec-51994-0293-160  | A6V            | 0.00050342 | spSpec-51942-0301-551  | A2V           | 0.00055310 |
| spSpec-51994-0309-473  | F0IV           | 0.00049821 | spSpec-51957-0273-523  | A9V           | 0.00055329 |
| spSpec-51994-0309-519  | F0IV           | 0.00050160 | spSpec-51662-0308-536  | F0III         | 0.00056430 |
| spSpec-52367-0332-019  | A2V            | 0.00049926 | spSpec-51942-0301-430  | A2V           | 0.00055787 |
| spSpec-52367-0332-517  | A6V            | 0.00050379 | spSpec-51959-0283-424  | A9V           | 0.00055642 |
| spSpec-51699-0349-357  | A9V            | 0.00051022 | spSpec-51959-0283-632  | F0V           | 0.00056399 |
| spSpec-51990-0340-581  | A9V            | 0.00050715 | spSpec-51990-0310-216  | A2V           | 0.00056320 |
| spSpec-51997-0337-175  | B4III          | 0.00051080 | spSpec-51994-0293-033  | A6V           | 0.00056333 |
| spSpec-52313-0333-413  | A7V            | 0.00050641 | spSpec-51615-0303-337  | A7V           | 0.00057272 |
| spSpec-52370-0330-020  | B5I            | 0.00050732 | spSpec-51942-0301-073  | F3V           | 0.00057010 |
| spSpec-52370-0330-604  | F3V            | 0.00050944 | spSpec-51990-0310-519  | F3V           | 0.00057321 |
| spSpec-51658-0282-088  | A7V            | 0.00052143 | spSpec-52367-0332-555  | A1V           | 0.00057401 |
| spSpec-51788-0355-507  | B2III          | 0.00052430 | spSpec-51662-0308-394  | F0V           | 0.00057676 |
| spSpec-51941-0272-510  | B1.5V          | 0.00052162 | spSpec-51663-0307-114  | A8III         | 0.00057777 |
| spSpec-51990-0340-362  | A9V            | 0.00051841 | spSpec-51689-0312-226  | A8III         | 0.00057711 |
| spSpec-51788-0355-540  | B5II           | 0.00058445 | spSpec-51993-0334-272  | A9V           | 0.00060219 |
| spSpec-51792-0354-637  | F0IV           | 0.00057950 | spSpec-51994-0309-358  | F3V           | 0.00060009 |
| spSpec-51818-0358-039  | A2V            | 0.00058292 | spSpec-51613-0305-243  | A7V           | 0.00061227 |
| spSpec-51818-0358-060  | F6V            | 0.00057737 | spSpec-51613-0305-518  | F0IV          | 0.00060657 |
| spSpec-51908-0277-533  | F3V            | 0.00057762 | spSpec-51663-0307-020  | G3V           | 0.00060577 |
| spSpec-51942-0301-101  | A8III          | 0.00058409 | spSpec-51688-0302-421  | A6V           | 0.00061082 |
| spSpec-51955-0298-381  | A6V            | 0.00057863 | spSpec-51691-0342-399  | F3V           | 0.00061414 |
| spSpec-51993-0334-332  | F0III          | 0.00058391 | spSpec-51990-0340-418  | A2V           | 0.00060612 |
| spSpec-51691-0342-360  | F0IV           | 0.00059186 | spSpec-51997-0337-559  | A1V           | 0.00060976 |
| Object       | Type   | Value  | Object       | Type   | Value  |
|--------------|--------|--------|--------------|--------|--------|
| spSpec-51900-0278-257 | A9V     | 0.00059198 | spSpec-51662-0308-334 | A6V     | 0.00061843 |
| spSpec-51943-0300-131 | F0III   | 0.00059339 | spSpec-51691-0342-182 | A9V     | 0.00061661 |
| spSpec-51955-0298-401 | F3V     | 0.00059438 | spSpec-51691-0342-345 | F0IV    | 0.00061778 |
| spSpec-51957-0273-098 | F4III   | 0.00059296 | spSpec-51694-0338-427 | A9V     | 0.00062146 |
| spSpec-51959-0283-433 | F6V     | 0.00059297 | spSpec-51883-0271-121 | A3I     | 0.00061977 |
| spSpec-51994-0293-290 | A6V     | 0.00059153 | spSpec-51993-0334-363 | F0IV    | 0.00061883 |
| spSpec-51994-0309-194 | A8V     | 0.00058785 | spSpec-51994-0293-245 | A6V     | 0.00062295 |
| spSpec-51818-0358-128 | A8III   | 0.00060370 | spSpec-51662-0308-199 | F0IV    | 0.00063447 |
| spSpec-51959-0283-305 | F0IV    | 0.00059501 | spSpec-51663-0307-530 | A6V     | 0.00063430 |
| spSpec-51990-0340-518 | F0III   | 0.00060466 | spSpec-51671-0299-371 | A6V     | 0.00063302 |
| spSpec-51789-0352-177 | A3V     | 0.00062889 | spSpec-51990-0289-289 | A7V     | 0.00068434 |
| spSpec-51816-0360-525 | F0IV    | 0.00062819 | spSpec-51997-0337-486 | F0III   | 0.00067895 |
| spSpec-51955-0298-464 | F0IV    | 0.00062778 | spSpec-52000-0335-480 | A6V     | 0.00067675 |
| spSpec-51997-0337-587 | F0III   | 0.00063040 | spSpec-52367-0332-107 | B1.5V   | 0.00068216 |
| spSpec-52000-0288-498 | A2V     | 0.00062679 | spSpec-51662-0308-222 | A8III   | 0.0006832 |
| spSpec-52017-0366-092 | A6V     | 0.00063495 | spSpec-51691-0342-011 | A8III   | 0.00069163 |
| spSpec-51694-0338-225 | A6V     | 0.00064046 | spSpec-51816-0360-178 | G2V     | 0.00070487 |
| spSpec-51780-0351-219 | A8V     | 0.00064146 | spSpec-51957-0304-234 | A1V     | 0.00070070 |
| spSpec-51818-0358-078 | A9I     | 0.00064258 | spSpec-51994-0293-209 | F0IV    | 0.00070474 |
| spSpec-51909-0276-370 | B3III   | 0.00063684 | spSpec-52000-0335-426 | A6V     | 0.00070083 |
| spSpec-51990-0340-367 | A8III   | 0.00063994 | spSpec-52023-0287-335 | F0V     | 0.00070443 |
| spSpec-51663-0307-465 | A3III   | 0.00065330 | spSpec-51613-0305-134 | B1.5V   | 0.00071258 |
| spSpec-51691-0342-626 | A6V     | 0.00065222 | spSpec-51662-0308-240 | F0IV    | 0.00071448 |
| spSpec-51986-0294-229 | F0IV    | 0.00065464 | spSpec-51688-0302-349 | A2V     | 0.00071208 |
| spSpec-51662-0308-448 | A7V     | 0.00066248 | spSpec-51943-0300-584 | F0III   | 0.00071464 |
| spSpec-51699-0349-252 | G7V     | 0.00065785 | spSpec-51994-0293-618 | F0IV    | 0.00070703 |
| spSpec-51792-0354-532 | F0III   | 0.00066131 | spSpec-52017-0366-394 | F3IV    | 0.00070509 |
| spSpec-51928-0291-307 | B5III   | 0.00065960 | spSpec-52367-0332-383 | A6V     | 0.00071300 |
| Source          | Type  | Value  | Source          | Type  | Value  |
|----------------|-------|--------|----------------|-------|--------|
| spSpec-51943-0300-213 | A9V   | 0.00066373 | spSpec-52370-0330-213 | F0III | 0.00071122 |
| spSpec-51990-0310-239   | A3V   | 0.00066289 | spSpec-51658-0282-368 | A6V   | 0.00072316 |
| spSpec-51997-0337-270   | A6V   | 0.00066465 | spSpec-51663-0307-034  | G2V   | 0.00071930 |
| spSpec-52017-0366-046   | A7V   | 0.00066087 | spSpec-51691-0342-306  | F3V   | 0.00072466 |
| spSpec-52017-0366-094   | F0IV  | 0.00066397 | spSpec-51699-0349-155  | A9V   | 0.00071898 |
| spSpec-52017-0366-132   | A6V   | 0.00065920 | spSpec-51928-0291-284  | F5V   | 0.00072051 |
| spSpec-51609-0292-013   | B3V   | 0.00066608 | spSpec-51959-0283-194  | F0IV  | 0.00072396 |
| spSpec-51691-0342-021   | A8III | 0.00066643 | spSpec-51671-0299-221  | A3V   | 0.00072504 |
| spSpec-51691-0342-357   | F5V   | 0.00066779 | spSpec-51671-0299-319  | A7V   | 0.00073240 |
| spSpec-51818-0358-318   | B5III | 0.00066732 | spSpec-51792-0354-061  | A7V   | 0.00073024 |
| spSpec-51990-0310-451   | F0V   | 0.00067060 | spSpec-51959-0283-551  | F0IV  | 0.00073409 |
| spSpec-51993-0334-456   | F6V   | 0.00066901 | spSpec-51993-0334-308  | F0IV  | 0.00073285 |
| spSpec-51997-0337-212   | F0III | 0.00067364 | spSpec-51994-0309-639  | A8III | 0.00073470 |
| spSpec-51694-0338-387   | F6V   | 0.00067542 | spSpec-51671-0299-252  | F3IV  | 0.00073904 |
| spSpec-51788-0355-104   | F0V   | 0.00068230 | spSpec-51699-0349-541  | F0III | 0.00073556 |
| spSpec-51789-0352-487   | F6V   | 0.00073973 | spSpec-52017-0366-412  | F3IV  | 0.00076975 |
| spSpec-51957-0273-366   | F3V   | 0.00073898 | spSpec-51613-0305-080  | G3V   | 0.00077695 |
| spSpec-51990-0340-505   | F3V   | 0.00074295 | spSpec-51689-0312-084  | F0IV  | 0.00077520 |
| spSpec-51994-0309-483   | A8III | 0.00073681 | spSpec-51703-0353-591  | A8III | 0.00078150 |
| spSpec-52282-0328-122   | A2V   | 0.00074039 | spSpec-51788-0355-488  | G6V   | 0.00078478 |
| spSpec-52294-0327-230   | A6V   | 0.00073575 | spSpec-51792-0354-287  | A0I   | 0.00078072 |
| spSpec-51671-0299-213   | A3V   | 0.00075366 | spSpec-51792-0354-358  | F0V   | 0.00077823 |
| spSpec-51694-0338-614   | G3V   | 0.00074789 | spSpec-51816-0360-269  | F0IV  | 0.00077987 |
| spSpec-51990-0310-266   | A9V   | 0.00074757 | spSpec-51818-0358-255  | G2V   | 0.00078456 |
| spSpec-51994-0293-527   | F0V   | 0.00075364 | spSpec-51908-0277-055  | B3I   | 0.00077680 |
| spSpec-52368-0331-489   | F0IV  | 0.00075010 | spSpec-52017-0366-028  | F0IV  | 0.00078196 |
| spSpec-51690-0341-137   | A8III | 0.00076108 | spSpec-51691-0342-172  | A8III | 0.00078812 |
| spSpec-51691-0342-346   | A9V   | 0.00076117 | spSpec-51900-0278-242  | B8V   | 0.00078749 |
| spSpec-51792-0354-343 | A2V 0.00075633 | spSpec-51985-0295-368 | A9V 0.00079205 |
| spSpec-51821-0359-233 | A9V 0.00075669 | spSpec-51994-0293-504 | B5I 0.00078826 |
| spSpec-51821-0359-609 | F0IV 0.00076025 | spSpec-51609-0292-220 | A9V 0.00080150 |
| spSpec-51942-0301-535 | F0IV 0.00075711 | spSpec-51614-0281-413 | G3V 0.00079982 |
| spSpec-52023-0287-293 | A7V 0.00075642 | spSpec-51671-0299-417 | A8V 0.00080491 |
| spSpec-52282-0328-137 | F3V 0.00076142 | spSpec-51673-0313-528 | F0IV 0.00080045 |
| spSpec-52375-0326-131 | A1V 0.00075950 | spSpec-51690-0341-195 | A7V 0.00080050 |
| spSpec-51671-0299-316 | F3IV 0.00076906 | spSpec-51789-0353-407 | G3V 0.00080335 |
| spSpec-51691-0342-520 | A3V 0.00076907 | spSpec-51789-0352-129 | F5II 0.00080027 |
| spSpec-51699-0349-117 | G6V 0.00077054 | spSpec-51910-0275-487 | A2V 0.00080162 |
| spSpec-51780-0351-264 | G3V 0.00077490 | spSpec-51942-0301-111 | F3V 0.00080448 |
| spSpec-51792-0354-196 | B8III 0.00076665 | spSpec-51986-0294-325 | F0IV 0.00080191 |
| spSpec-51792-0354-464 | F0III 0.00077363 | spSpec-51990-0340-280 | F3IV 0.00079502 |
| spSpec-51818-0358-117 | F0IV 0.00076725 | spSpec-51994-0293-056 | A7V 0.00080434 |
| spSpec-51943-0284-396 | A9V 0.00077090 | spSpec-52017-0366-196 | B3I 0.00080254 |
| spSpec-51943-0300-459 | G3V 0.00076756 | spSpec-52017-0366-339 | G6V 0.00079788 |
| spSpec-51955-0298-570 | A9I 0.00077094 | spSpec-51658-0282-529 | A6V 0.00080953 |
| spSpec-51990-0340-352 | B3III 0.00076806 | spSpec-51662-0308-093 | A7V 0.00081237 |
| spSpec-51994-0293-470 | A2V 0.00077248 | spSpec-51691-0350-355 | G7V 0.00080661 |
| spSpec-52000-0335-469 | A2V 0.00076874 | spSpec-51818-0358-156 | A6V 0.00081459 |
| spSpec-51990-0340-319 | A8III 0.00081200 | spSpec-51957-0273-639 | F0V 0.00086333 |
| spSpec-51662-0308-364 | F5V 0.00082053 | spSpec-51993-0334-541 | F0V 0.00086218 |
| spSpec-51818-0358-584 | A8V 0.00081814 | spSpec-51994-0293-308 | F0III 0.00085581 |
| spSpec-51957-0304-630 | G3V 0.00081562 | spSpec-52282-0328-306 | A2V 0.00085551 |
| spSpec-51994-0309-336 | F0IV 0.00081782 | spSpec-51658-0282-565 | A7V 0.00087157 |
| spSpec-52000-0335-537 | A2V 0.00081675 | spSpec-51699-0349-057 | A7V 0.00087046 |
| spSpec-52313-0333-408 | F0IV 0.00081998 | spSpec-51699-0349-549 | G2V 0.00087181 |
| spSpec-51658-0282-172 | F0IV 0.00083368 | spSpec-51792-0354-372 | A1V 0.00086649 |
| SpSpec-51665-0311-575 | B2.5III | 0.00082641 | SpSpec-51821-0359-615 | A8V   | 0.00087291 |
|----------------------|--------|------------|----------------------|-------|------------|
| SpSpec-51941-0290-191 | F0V    | 0.00082985 | SpSpec-51900-0278-529 | A9V   | 0.00087092 |
| SpSpec-51942-0301-420 | A2V    | 0.00083139 | SpSpec-51928-0291-635 | G3V   | 0.00086844 |
| SpSpec-51986-0294-474 | F0III  | 0.00082776 | SpSpec-51990-0310-206 | A6V   | 0.00086985 |
| SpSpec-51994-0293-108 | B9I    | 0.00082505 | SpSpec-51994-0293-623 | A2V   | 0.00087471 |
| SpSpec-52000-0335-311 | F0III  | 0.00083033 | SpSpec-51997-0337-520 | A3V   | 0.00087498 |
| SpSpec-51609-0292-254 | F3V    | 0.00084096 | SpSpec-51615-0303-288 | G3V   | 0.00088164 |
| SpSpec-51691-0350-555 | A7V    | 0.00083511 | SpSpec-51662-0308-397 | F0V   | 0.00087676 |
| SpSpec-51692-0343-393 | A9I    | 0.00084096 | SpSpec-51663-0307-480 | F0IV  | 0.00087646 |
| SpSpec-51942-0301-023 | F0IV   | 0.00084082 | SpSpec-51671-0299-592 | B8I   | 0.00088153 |
| SpSpec-51662-0308-356 | A9V    | 0.00084974 | SpSpec-51691-0342-190 | F0III | 0.00088093 |
| SpSpec-51792-0354-238 | F4III  | 0.00085225 | SpSpec-51692-0339-307 | F0III | 0.00087930 |
| SpSpec-51943-0300-327 | A6V    | 0.00084858 | SpSpec-51780-0351-456 | F5II  | 0.00088390 |
| SpSpec-52000-0335-476 | F3V    | 0.00084824 | SpSpec-51818-0358-533 | A6V   | 0.00087888 |
| SpSpec-52056-0329-583 | F0IV   | 0.00084780 | SpSpec-51943-0300-443 | A2V   | 0.00087777 |
| SpSpec-51613-0305-398 | F5II   | 0.00085570 | SpSpec-52056-0329-122 | G3V   | 0.00087867 |
| SpSpec-51689-0312-472 | F0III  | 0.00085530 | SpSpec-52282-0328-352 | G2V   | 0.00088305 |
| SpSpec-51691-0350-625 | G2V    | 0.00086330 | SpSpec-52294-0327-477 | A6V   | 0.00088484 |
| SpSpec-51694-0338-233 | B8V    | 0.00085693 | SpSpec-52313-0333-493 | G2V   | 0.00087622 |
| SpSpec-51703-0353-064 | F4III  | 0.00086447 | SpSpec-51637-0306-255 | F0IV  | 0.00088574 |
| SpSpec-51703-0353-502 | G3V    | 0.00086178 | SpSpec-51658-0282-564 | F0IV  | 0.00088565 |
| SpSpec-51792-0354-127 | F0III  | 0.00085587 | SpSpec-51673-0313-132 | F0V   | 0.00089271 |
| SpSpec-51792-0354-184 | F0I    | 0.00086225 | SpSpec-51689-0312-031 | B6V   | 0.00089164 |
| SpSpec-51910-0275-247 | G3V    | 0.00086130 | SpSpec-51703-0353-404 | G6V   | 0.00088662 |
| SpSpec-51943-0300-084 | A6V    | 0.00085816 | SpSpec-51788-0355-262 | F0V   | 0.00089490 |
| SpSpec-51990-0340-205 | A9V    | 0.00088539 | SpSpec-51955-0298-181 | F0IV  | 0.00092370 |
| SpSpec-51990-0340-426 | A7V    | 0.00088538 | SpSpec-51957-0273-391 | A6V   | 0.00091795 |
| SpSpec-52282-0328-265 | A7V    | 0.00088915 | SpSpec-52000-0288-577 | F0V   | 0.00092370 |
| Object       | Type | Temperature | Mass   |
|-------------|------|-------------|--------|
| spSpec-51691-0342-141 | A2V  | 0.00089629  |        |
| spSpec-51691-0342-545 | A6V  | 0.00090366  |        |
| spSpec-51821-0359-012 | G3V  | 0.00089839  |        |
| spSpec-51957-0273-383 | A8III| 0.00089616  |        |
| spSpec-51957-0304-207 | G7V  | 0.00089908  |        |
| spSpec-51957-0304-325 | G3V  | 0.00090484  |        |
| spSpec-51989-0363-590 | F0III| 0.00089702  |        |
| spSpec-51994-0293-131 | F6V  | 0.00089893  |        |
| spSpec-51994-0293-397 | A2V  | 0.00090199  |        |
| spSpec-51994-0293-550 | F0III| 0.00089629  |        |
| spSpec-52000-0288-060 | A2V  | 0.00089564  |        |
| spSpec-52023-0287-355 | F3V  | 0.00090000  |        |
| spSpec-51633-0268-278 | G3V  | 0.00091493  |        |
| spSpec-51658-0282-610 | A8III| 0.00090697  |        |
| spSpec-51663-0307-537 | B5I  | 0.00090857  |        |
| spSpec-51673-0313-410 | A8V  | 0.00090912  |        |
| spSpec-51703-0353-605 | F3IV | 0.00091242  |        |
| spSpec-51818-0358-560 | F5II | 0.00090687  |        |
| spSpec-51821-0359-397 | F6V  | 0.00090669  |        |
| spSpec-51943-0300-544 | F2I  | 0.00091199  |        |
| spSpec-51955-0298-225 | F5II | 0.00090525  |        |
| spSpec-51957-0273-574 | F5V  | 0.00090885  |        |
| spSpec-51990-0289-296 | F0IV | 0.00090778  |        |
| spSpec-51999-0286-578 | A9V  | 0.00091435  |        |
| spSpec-51689-0312-392 | A9V  | 0.00091596  |        |
| spSpec-51689-0312-590 | F0IV | 0.00091687  |        |
| spSpec-51692-0339-060 | G3V  | 0.00091946  |        |
| spSpec-51792-0354-564 | G3V  | 0.00091552  |        |
| spSpec-52313-0333-439 | G6V  | 0.00091997  |        |
| spSpec-52368-0331-550 | A6V  | 0.00091805  |        |
| spSpec-52375-0326-448 | A6V  | 0.00091512  |        |
| spSpec-51614-0281-204 | F0IV | 0.00092637  |        |
| spSpec-51658-0282-174 | F0III| 0.00092669  |        |
| spSpec-51951-0328-500 | G2V  | 0.00093324  |        |
| spSpec-51959-0297-634 | A1V  | 0.00093267  |        |
| spSpec-52375-0326-060 | A3III| 0.00093293  |        |
| spSpec-51614-0281-586 | G7V  | 0.00094274  |        |
| spSpec-51666-0307-459 | A1V  | 0.00093713  |        |
| spSpec-51673-0313-421 | A8III| 0.00094063  |        |
| spSpec-51691-0342-500 | A6V  | 0.00091493  |        |
| spSpec-51959-0297-112 | F0III| 0.00093267  |        |
| spSpec-52375-0326-350 | A3III| 0.00093293  |        |
| spSpec-51614-0281-586 | G7V  | 0.00094274  |        |
| spSpec-51666-0307-459 | A1V  | 0.00093713  |        |
| Object          | Spectral Type | Magnitude | Object          | Spectral Type | Magnitude |
|-----------------|---------------|-----------|-----------------|---------------|-----------|
| spSpec-51942-0301-256 | F3IV          | 0.00092125 | spSpec-51689-0312-638 | G3V          | 0.00096496 |
| spSpec-51942-0301-541   | A8III         | 0.00092233 | spSpec-51788-0355-004   | G3V          | 0.00095722 |
| spSpec-51792-0354-047   | G2V           | 0.00095857 | spSpec-51984-0296-335   | G3V          | 0.00099274 |
| spSpec-51928-0291-154   | G3V           | 0.00096450 | spSpec-51994-0309-235   | F5II         | 0.00098517 |
| spSpec-51943-0300-483   | A9V           | 0.00096440 | spSpec-52294-0327-339   | G2V          | 0.00098717 |
| spSpec-51986-0294-023   | A6V           | 0.00095981 | spSpec-52294-0327-564   | G6V          | 0.00099200 |
| spSpec-51990-0310-568   | A8V           | 0.00095896 | spSpec-52368-0331-165   | A8V          | 0.00099269 |
| spSpec-51994-0309-315   | G3V           | 0.00095924 | spSpec-51615-0303-228   | A7V          | 0.00100118 |
| spSpec-52367-0332-593   | A2V           | 0.00096164 | spSpec-51663-0307-023   | F6III        | 0.00100233 |
| spSpec-51662-0308-582   | F0V           | 0.00096576 | spSpec-51789-0352-133   | G3V          | 0.00099589 |
| spSpec-51692-0343-396   | F4V           | 0.00097085 | spSpec-51818-0358-634   | F5II         | 0.00100405 |
| spSpec-51792-0354-514   | F0III         | 0.00097125 | spSpec-51821-0359-347   | A9V          | 0.00100364 |
| spSpec-51913-0274-130   | G4V           | 0.00097247 | spSpec-51908-0277-315   | F5III        | 0.00099659 |
| spSpec-51942-0301-447   | G2V           | 0.00097113 | spSpec-51609-0292-088   | A7V          | 0.00101014 |
| spSpec-51990-0289-005   | F0IV          | 0.00096606 | spSpec-51658-0282-208   | A8V          | 0.00100858 |
| spSpec-51990-0310-414   | F0IV          | 0.00096878 | spSpec-51663-0307-586   | A8III        | 0.00101038 |
| spSpec-51658-0282-527   | F0IV          | 0.00098331 | spSpec-51816-0360-599   | G2V          | 0.00101189 |
| spSpec-51673-0313-533   | F0IV          | 0.00097904 | spSpec-51955-0298-368   | B3V          | 0.00100925 |
| spSpec-51692-0339-214   | F6III         | 0.00098363 | spSpec-51994-0293-093   | A2V          | 0.00101158 |
| spSpec-51703-0353-638   | G7V           | 0.00098136 | spSpec-51994-0309-097   | A9V          | 0.00101001 |
| spSpec-51792-0354-329   | G2V           | 0.00098076 | spSpec-51994-0309-300   | F6III        | 0.00100577 |
| spSpec-51909-0276-413   | A5V           | 0.00097970 | spSpec-52000-0288-429   | B9III        | 0.00101321 |
| spSpec-51930-0285-090   | A7V           | 0.00098320 | spSpec-52017-0366-075   | G6V          | 0.00101289 |
| spSpec-51959-0283-535   | A6V           | 0.00097684 | spSpec-52017-0366-301   | A7V          | 0.00100696 |
| spSpec-51990-0310-253   | A2V           | 0.00098470 | spSpec-52282-0328-060   | A2V          | 0.00100702 |
| spSpec-52000-0288-272   | F3V           | 0.00098405 | spSpec-51658-0282-212   | A2V          | 0.00102281 |
| spSpec-51630-0266-049   | F3IV          | 0.00098585 | spSpec-51703-0353-226   | A9V          | 0.00102437 |
| spSpec-51637-0306-551   | G3V           | 0.00098556 | spSpec-51789-0352-035   | A9V          | 0.00101559 |
| Source Number          | Type  | Value 1 | Source Number          | Type  | Value 1 | Source Number          | Type  | Value 1 |
|------------------------|-------|---------|------------------------|-------|---------|------------------------|-------|---------|
| spSpec-51665-0311-309  | G6V   | 0.00099425 | spSpec-51990-0310-049  | F0V   | 0.00102202 |
| spSpec-51671-0299-231  | A7V   | 0.00099434 | spSpec-51994-0293-129  | G6V   | 0.00102333 |
| spSpec-51689-0312-331  | G7V   | 0.00099133 | spSpec-52282-0328-373  | G3V   | 0.00101592 |
| spSpec-51699-0349-101  | G2V   | 0.00099168 | spSpec-52375-0326-170  | A2V   | 0.00102447 |
| spSpec-51816-0360-220  | F0III | 0.00098855 | spSpec-51608-0267-101  | G7V   | 0.00103205 |
| spSpec-51821-0359-506  | G0V   | 0.00099487 | spSpec-51658-0282-136  | A8III | 0.00103302 |
| spSpec-51957-0273-613  | F6V   | 0.00099125 | spSpec-51691-0342-554  | G3V   | 0.00102695 |
| spSpec-51692-0339-145  | A2V   | 0.00102871 | spSpec-52367-0332-032  | G2V   | 0.00104734 |
| spSpec-51821-0359-120  | A6V   | 0.00102571 | spSpec-51612-0280-069  | G3V   | 0.00106235 |
| spSpec-51941-0290-301  | A2V   | 0.00103108 | spSpec-51613-0305-178  | G6V   | 0.00106289 |
| spSpec-51942-0301-528  | A6V   | 0.00102712 | spSpec-51662-0308-532  | F4III | 0.00106026 |
| spSpec-51955-0298-268  | F3V   | 0.00103394 | spSpec-51690-0341-144  | F0IV  | 0.00105833 |
| spSpec-51955-0298-488  | A2V   | 0.00103009 | spSpec-51690-0341-267  | A6V   | 0.00106224 |
| spSpec-51990-0289-141  | A3III | 0.00102698 | spSpec-51691-0350-504  | A9V   | 0.00106333 |
| spSpec-51994-0309-065  | F4III | 0.00102735 | spSpec-51703-0353-050  | G3V   | 0.00105771 |
| spSpec-52000-0335-043  | G3V   | 0.00103338 | spSpec-51943-0300-315  | F3V   | 0.00105747 |
| spSpec-52000-0335-342  | A8III | 0.00103006 | spSpec-51957-0304-386  | F3V   | 0.00106479 |
| spSpec-52000-0335-345  | G2V   | 0.00102809 | spSpec-51959-0283-260  | F3V   | 0.00106323 |
| spSpec-52367-0332-295  | F0III | 0.00103406 | spSpec-51990-0340-216  | A6V   | 0.00105560 |
| spSpec-52368-0331-251  | F4III | 0.00103012 | spSpec-51999-0286-036  | F4III | 0.00106121 |
| spSpec-51690-0341-438  | F4III | 0.00103677 | spSpec-52294-0327-256  | G3V   | 0.00106016 |
| spSpec-51691-0342-038  | G6V   | 0.00103804 | spSpec-52367-0332-004  | G2V   | 0.00105695 |
| spSpec-51692-0343-382  | F5II  | 0.00103609 | spSpec-52368-0331-531  | F0III | 0.00105588 |
| spSpec-51942-0301-387  | B9III | 0.00103775 | spSpec-51633-0268-487  | A8III | 0.00106824 |
| spSpec-51943-0300-348  | F0IV  | 0.00103503 | spSpec-51663-0307-149  | A6V   | 0.00106598 |
| spSpec-51989-0363-005  | B8III | 0.00103863 | spSpec-51663-0315-006  | G3V   | 0.00107286 |
| spSpec-51993-0334-267  | F0III | 0.00104186 | spSpec-51690-0341-349  | G6V   | 0.00107013 |
| spSpec-52282-0328-376  | F4III | 0.00104460 | spSpec-51692-0343-261  | A8V   | 0.00107295 |
|     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|
| spSpec-52368-0331-325 | F3V | 0.00103691 |     | spSpec-51699-0349-489 | G3V | 0.00107138 |
| spSpec-51633-0268-018 | G3V | 0.00104752 |     | spSpec-51818-0358-319 | G3V | 0.00107003 |
| spSpec-51663-0307-562 | B3I | 0.00104568 |     | spSpec-51821-0359-263 | A6III | 0.00107148 |
| spSpec-51788-0355-254 | F0III | 0.00104941 |     | spSpec-51883-0271-549 | G3V | 0.00106888 |
| spSpec-51789-0352-096 | G3V | 0.00105491 |     | spSpec-51909-0270-403 | A9I | 0.00107303 |
| spSpec-51818-0358-341 | G3V | 0.00104551 |     | spSpec-51941-0272-582 | A9V | 0.00106623 |
| spSpec-51913-0274-055 | A6V | 0.00105333 |     | spSpec-51984-0279-119 | F0IV | 0.00107020 |
| spSpec-51930-0285-304 | G3V | 0.00105471 |     | spSpec-51955-0298-466 | G3V | 0.00107006 |
| spSpec-51930-0285-327 | A8III | 0.00105384 |     | spSpec-52023-0287-242 | F4V | 0.00107455 |
| spSpec-51941-0290-481 | F0V | 0.00104843 |     | spSpec-52370-0330-573 | A3III | 0.00106647 |
| spSpec-52023-0287-188 | F9V | 0.00105487 |     | spSpec-52163-0305-435 | G3V | 0.00107877 |
| spSpec-52282-0328-109 | A7V | 0.00105298 |     | spSpec-51609-0292-351 | A2V | 0.00111192 |
| spSpec-51692-0339-149 | A2V | 0.00107840 |     | spSpec-51689-0312-332 | B5I | 0.00110503 |
| spSpec-51692-0339-534 | A6V | 0.00107950 |     | spSpec-51699-0349-538 | G4V | 0.00110617 |
| spSpec-51789-0352-051 | F0V | 0.00108035 |     | spSpec-51994-0293-147 | G3V | 0.00111211 |
| spSpec-51821-0359-235 | G2V | 0.00107806 |     | spSpec-51994-0293-411 | F0V | 0.00111264 |
| spSpec-51959-0283-413 | F5II | 0.00108257 |     | spSpec-52000-0288-175 | F0IV | 0.00110936 |
| spSpec-52000-0288-084 | G3V | 0.00107750 |     | spSpec-52000-0335-189 | A8V | 0.00111306 |
| spSpec-51669-0292-102 | A6V | 0.00108847 |     | spSpec-51697-0337-637 | F6III | 0.00110811 |
| spSpec-51630-0266-140 | A2V | 0.00108631 |     | spSpec-52000-0288-175 | F0IV | 0.00110936 |
| spSpec-51666-0308-369 | A8V | 0.00109297 |     | spSpec-52000-0288-175 | F0IV | 0.00110936 |
| spSpec-51665-0311-358 | G3V | 0.00109093 |     | spSpec-51658-0282-067 | B7III | 0.00111983 |
| spSpec-51690-0341-470 | A6V | 0.00108917 |     | spSpec-51792-0354-618 | G3V | 0.00112168 |
| spSpec-51692-0339-209 | F0V | 0.00108744 |     | spSpec-51821-0359-127 | A7V | 0.00112022 |
| spSpec-51692-0343-350 | G4V | 0.00108808 |     | spSpec-51821-0359-567 | G7V | 0.00112115 |
| Object     | Type  | Value  | Object     | Type  | Value  |
|------------|-------|--------|------------|-------|--------|
| spSpec-52282-0328-132 | G3V   | 0.00108702 | spSpec-51883-0271-063 | A8V   | 0.00112059 |
| spSpec-51637-0306-048   | F0III | 0.00109902 | spSpec-51941-0290-531  | A1V   | 0.00111699 |
| spSpec-51658-0282-595   | A2V   | 0.00109702 | spSpec-51986-0294-270  | A9V   | 0.00112432 |
| spSpec-51662-0308-609   | F0IV  | 0.00109509 | spSpec-51990-0289-062  | F5V   | 0.00112053 |
| spSpec-51688-0302-420   | A8III | 0.00109932 | spSpec-51994-0293-475  | A8V   | 0.00111665 |
| spSpec-51703-0353-218   | F5V   | 0.00110075 | spSpec-52000-0335-456  | A2V   | 0.00112225 |
| spSpec-51821-0359-401   | G3V   | 0.00110139 | spSpec-52367-0332-235  | G6V   | 0.00111883 |
| spSpec-51908-0277-304   | F3V   | 0.00109737 | spSpec-52375-0326-058  | A3III | 0.00112364 |
| spSpec-51908-0277-351   | A7V   | 0.00110070 | spSpec-51609-0292-359  | F0IV  | 0.00113192 |
| spSpec-51909-0276-619   | G3V   | 0.00109753 | spSpec-51609-0292-471  | A9V   | 0.00113353 |
| spSpec-51941-0290-246   | F6III | 0.00109941 | spSpec-51613-0305-222  | G7V   | 0.00113466 |
| spSpec-51955-0298-385   | F3V   | 0.00110296 | spSpec-51658-0282-213  | A9V   | 0.00113154 |
| spSpec-51985-0295-247   | F0III | 0.00110140 | spSpec-51662-0308-440  | A6V   | 0.00113214 |
| spSpec-51990-0289-532   | F5II  | 0.00110113 | spSpec-51691-0342-490  | F3V   | 0.00112731 |
| spSpec-51993-0334-260   | F0III | 0.00109557 | spSpec-51788-0355-217  | A1V   | 0.00113120 |
| spSpec-52294-0327-513   | A3III | 0.00110478 | spSpec-51957-0304-060  | A6V   | 0.00113253 |
| spSpec-52368-0331-305   | A8V   | 0.00110461 | spSpec-52313-0333-174  | A6V   | 0.00113447 |
| spSpec-51609-0292-470   | F6III | 0.00113867 | spSpec-51990-0340-057  | A7V   | 0.00116274 |
| spSpec-51662-0308-113   | F5III | 0.00114198 | spSpec-51993-0334-543  | G3V   | 0.00116244 |
| spSpec-51663-0315-177   | B7III | 0.00113790 | spSpec-51994-0309-212  | F0III | 0.00116083 |
| spSpec-51665-0311-348   | G3V   | 0.00114162 | spSpec-52000-0335-348  | F5V   | 0.00115975 |
| spSpec-51692-0339-357   | G3V   | 0.00113695 | spSpec-52017-0366-491  | G6V   | 0.00116407 |
| spSpec-51692-0339-365   | G3V   | 0.00113929 | spSpec-52313-0333-311  | A2V   | 0.00116045 |
| spSpec-51908-0277-206   | F0V   | 0.00114315 | spSpec-51662-0308-426  | F5II  | 0.00117042 |
| spSpec-51913-0274-222   | A1V   | 0.00114259 | spSpec-51665-0311-400  | F0IV  | 0.00117072 |
| spSpec-51990-0310-098   | A7V   | 0.00113540 | spSpec-51688-0302-358  | A7V   | 0.00116734 |
| spSpec-51990-0340-356   | F0IV  | 0.00114470 | spSpec-51692-0339-013  | F6III | 0.00117189 |
| spSpec-52000-0335-497   | A9V   | 0.00113701 | spSpec-51816-0360-437  | A6V   | 0.00117406 |
| Filename            | Type   | Digit | Filename            | Type   | Digit |
|---------------------|--------|-------|---------------------|--------|-------|
| spSpec-52294-0327-192 | A8III  | 0.00114473 | spSpec-51821-0359-315 | F0V    | 0.00116554 |
| spSpec-52368-0331-434   | A8V    | 0.00114401 | spSpec-51984-0296-425 | A7V    | 0.00116812 |
| spSpec-52375-0326-179   | B9III  | 0.00113581 | spSpec-51989-0363-418 | B8I    | 0.00117139 |
| spSpec-51608-0267-557   | G0V    | 0.00115385 | spSpec-51999-0286-177 | A9I    | 0.00116671 |
| spSpec-51665-0311-635   | G6V    | 0.00114501 | spSpec-52023-0287-079 | F0IV   | 0.00117166 |
| spSpec-51689-0312-046   | A9V    | 0.00115342 | spSpec-52023-0287-243 | F4III  | 0.00116976 |
| spSpec-51690-0341-370   | B3I    | 0.00114672 | spSpec-51789-0352-241 | B2III  | 0.00118231 |
| spSpec-51699-0349-163   | F0III  | 0.00115066 | spSpec-51930-0285-281 | G4V    | 0.00118033 |
| spSpec-51699-0349-475   | G3V    | 0.00114665 | spSpec-51941-0272-518 | A9V    | 0.00118193 |
| spSpec-51792-0354-055   | F5II   | 0.00115463 | spSpec-51941-0272-620 | G3V    | 0.00117926 |
| spSpec-51909-0276-227   | F0IV   | 0.00114570 | spSpec-51942-0301-326 | G4V    | 0.00118420 |
| spSpec-51941-0290-208   | G2V    | 0.00115301 | spSpec-51942-0301-639 | G3V    | 0.00117631 |
| spSpec-51990-0340-360   | F5III  | 0.00115035 | spSpec-51984-0296-308 | G3V    | 0.00117662 |
| spSpec-51994-0309-063   | A8V    | 0.00115405 | spSpec-51986-0294-281 | G3V    | 0.00118362 |
| spSpec-52017-0366-341   | A0I    | 0.00114976 | spSpec-51990-0340-355 | G3V    | 0.00118042 |
| spSpec-51609-0292-017   | G3V    | 0.00116354 | spSpec-51990-0340-545 | G6V    | 0.00118327 |
| spSpec-51609-0292-418   | G3V    | 0.00115720 | spSpec-52000-0335-553 | A1V    | 0.00117669 |
| spSpec-51637-0306-589   | F5V    | 0.00115649 | spSpec-52313-0333-322 | A8III  | 0.00117870 |
| spSpec-51662-0308-028   | F5II   | 0.00115596 | spSpec-51818-0358-214 | G3V    | 0.00119368 |
| spSpec-51671-0299-408   | A9V    | 0.00116046 | spSpec-51910-0269-309 | A8V    | 0.00119484 |
| spSpec-51673-0313-160   | F3V    | 0.00116143 | spSpec-51942-0301-228 | F0III  | 0.00119049 |
| spSpec-51942-0301-190   | F0IV   | 0.00115880 | spSpec-51955-0298-551 | F6III  | 0.00118679 |
| spSpec-51957-0273-272   | B9I    | 0.00119031 | spSpec-52000-0288-406 | G4V    | 0.00120938 |
| spSpec-51989-0363-601   | F0V    | 0.00118813 | spSpec-52000-0288-463 | F0IV   | 0.00120631 |
| spSpec-51993-0334-054   | F0IV   | 0.00118762 | spSpec-52000-0335-087 | A6V    | 0.00120976 |
| spSpec-51994-0309-496   | A9V    | 0.00118510 | spSpec-52017-0366-058 | G6V    | 0.00121274 |
| spSpec-51613-0305-462   | F5V    | 0.00120353 | spSpec-51613-0305-345 | F5II   | 0.00122434 |
| spSpec-51637-0306-360   | G2V    | 0.00120377 | spSpec-51613-0305-385 | F6III  | 0.00122463 |
| Object Number | Type   | Value       | Object Number | Type   | Value       |
|---------------|--------|-------------|---------------|--------|-------------|
| spSpec-51662-0308-080 | G3V    | 0.00119659  | spSpec-51630-0266-431 | G4V    | 0.00121945  |
| spSpec-51662-0308-366  | A9V    | 0.00120036  | spSpec-51658-0282-214  | F6V    | 0.00121602  |
| spSpec-51691-0342-330  | F0IV   | 0.00119922  | spSpec-51690-0341-280  | G3V    | 0.00122133  |
| spSpec-51692-0339-178  | G3V    | 0.00119720  | spSpec-51691-0342-305  | A3V    | 0.00121686  |
| spSpec-51699-0349-185  | A6V    | 0.00120380  | spSpec-51692-0343-341  | G2V    | 0.00121694  |
| spSpec-51699-0349-507  | G6V    | 0.00120043  | spSpec-51818-0358-296  | B3I    | 0.00122297  |
| spSpec-51789-0352-559  | A3V    | 0.00120278  | spSpec-51908-0277-428  | A9I    | 0.00121822  |
| spSpec-51900-0278-213  | G4V    | 0.00120056  | spSpec-51942-0301-235  | G3V    | 0.00121514  |
| spSpec-51942-0301-431  | B5I    | 0.00120044  | spSpec-51943-0284-296  | G6V    | 0.00121546  |
| spSpec-51943-0284-035  | G3V    | 0.00120289  | spSpec-51955-0298-133  | G3V    | 0.00121919  |
| spSpec-51943-0284-529  | G3V    | 0.00120122  | spSpec-51990-0289-258  | F5V    | 0.00122241  |
| spSpec-51957-0273-165  | F3V    | 0.00120363  | spSpec-51990-0340-245  | G3V    | 0.00122302  |
| spSpec-51957-0273-474  | F0IV   | 0.00119926  | spSpec-51993-0334-408  | A1V    | 0.00121635  |
| spSpec-51957-0304-586  | F5II   | 0.00119994  | spSpec-51999-0286-169  | A6V    | 0.00121616  |
| spSpec-51957-0304-589  | G1V    | 0.00119590  | spSpec-52017-0366-221  | G7V    | 0.00122462  |
| spSpec-51990-0340-002  | A7V    | 0.00120219  | spSpec-52056-0329-109  | A7V    | 0.00122105  |
| spSpec-51990-0340-537  | F6III  | 0.00120399  | spSpec-51658-0282-115  | A8V    | 0.00122943  |
| spSpec-51994-0293-059  | A2V    | 0.00120030  | spSpec-51658-0282-327  | F0III  | 0.00122796  |
| spSpec-51994-0293-457  | F0III  | 0.00119602  | spSpec-51665-0311-016  | G6V    | 0.00123060  |
| spSpec-52370-0330-129  | G6V    | 0.00120276  | spSpec-51688-0302-293  | G6V    | 0.00122564  |
| spSpec-51663-0307-274  | F5III  | 0.00120673  | spSpec-51689-0312-081  | F3IV   | 0.00122655  |
| spSpec-51699-0349-246  | G3V    | 0.00120915  | spSpec-51699-0349-164  | G3V    | 0.00122520  |
| spSpec-51908-0277-323  | F0III  | 0.00121064  | spSpec-51789-0352-287  | F9V    | 0.00122938  |
| spSpec-51990-0289-377  | A6V    | 0.00120923  | spSpec-51821-0359-155  | G3V    | 0.00122513  |
| spSpec-51994-0293-300  | G6V    | 0.00120529  | spSpec-51900-0278-354  | F6III  | 0.00123129  |
| spSpec-51994-0293-386  | A3V    | 0.00121027  | spSpec-51909-0270-518  | G3V    | 0.00123040  |
| spSpec-51997-0337-168  | F6III  | 0.00120728  | spSpec-51941-0290-319  | A2V    | 0.00123234  |
| spSpec-51957-0304-337  | F5III  | 0.00122949  | spSpec-51994-0309-355  | F3IV   | 0.00125173  |
| Source      | Type    | Value | Source      | Type    | Value |
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| spSpec-51959-0283-624 | F0III | 0.00122911 | spSpec-51671-0299-323 | F4V | 0.00126065 |
| spSpec-51993-0334-109 | A8III | 0.00123458 | spSpec-51910-0275-345 | F0III | 0.00125533 |
| spSpec-51994-0309-179 | A6V | 0.00122837 | spSpec-51959-0297-181 | A7V | 0.00126404 |
| spSpec-52056-0329-347 | G3V | 0.00122554 | spSpec-51990-0289-054 | G2V | 0.00125848 |
| spSpec-52282-0328-421 | F4III | 0.00123036 | spSpec-52367-0332-380 | A6V | 0.00125886 |
| spSpec-52367-0332-292 | A6V | 0.00122843 | spSpec-51671-0299-622 | F6V | 0.00127141 |
| spSpec-51608-0267-254 | F6V | 0.00124447 | spSpec-51691-0342-136 | G3V | 0.00127115 |
| spSpec-51609-0292-541 | A8III | 0.00124124 | spSpec-51692-0339-335 | G3V | 0.00127285 |
| spSpec-51633-0268-129 | F0III | 0.00123520 | spSpec-51694-0338-370 | G3V | 0.00127309 |
| spSpec-51658-0282-600 | F0III | 0.00124223 | spSpec-51900-0278-593 | A6V | 0.00127319 |
| spSpec-51663-0307-462 | G3V | 0.00124296 | spSpec-51955-0298-360 | G2V | 0.00127232 |
| spSpec-51663-0307-561 | G3V | 0.00124155 | spSpec-51985-0295-433 | F5II | 0.00126680 |
| spSpec-51818-0358-126 | B1III | 0.00124129 | spSpec-51990-0340-628 | F4III | 0.00126664 |
| spSpec-51909-0276-304 | F0V | 0.00123945 | spSpec-51663-0307-452 | A2V | 0.00127970 |
| spSpec-51910-0275-053 | F0III | 0.00123882 | spSpec-51689-0312-391 | A9V | 0.00128239 |
| spSpec-51930-0285-577 | G3V | 0.00124322 | spSpec-51691-0342-356 | F5V | 0.00128035 |
| spSpec-51942-0301-461 | F6III | 0.00123993 | spSpec-51691-0342-469 | A6V | 0.00128171 |
| spSpec-51943-0300-202 | F0V | 0.00124270 | spSpec-51699-0349-412 | G3V | 0.00127589 |
| spSpec-51955-0298-153 | G3V | 0.00124363 | spSpec-51792-0354-555 | G7V | 0.00127893 |
| spSpec-51984-0296-210 | F5V | 0.00123769 | spSpec-51816-0360-568 | G0III | 0.00128494 |
| spSpec-51989-0363-032 | F5V | 0.00124179 | spSpec-51910-0275-172 | A7V | 0.00127938 |
| spSpec-52313-0333-132 | A8III | 0.00124180 | spSpec-51941-0290-569 | A7V | 0.00128281 |
| spSpec-52368-0331-229 | G3V | 0.00123617 | spSpec-51994-0309-392 | G6V | 0.00128323 |
| spSpec-51637-0306-201 | G3V | 0.00125377 | spSpec-52000-0288-405 | G3V | 0.00127877 |
| spSpec-51662-0308-158 | A8V | 0.00124886 | spSpec-52023-0287-414 | A3III | 0.00128213 |
| spSpec-51673-0313-396 | F6III | 0.00125299 | spSpec-52294-0327-408 | F6III | 0.00127628 |
| spSpec-51816-0360-465 | A7V | 0.00124575 | spSpec-51658-0282-128 | G3V | 0.00128985 |
| spSpec-51908-0277-439 | A6V | 0.00124512 | spSpec-51788-0355-525 | F5II | 0.00128746 |
| spSpec-51942-0301-595   | G2V   | 0.00124795 |
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| spSpec-51942-0301-625   | B9III | 0.00125487 |
| spSpec-51943-0300-515   | A9V   | 0.00124916 |
| spSpec-51957-0304-085   | F5II  | 0.00125329 |
| spSpec-51930-0285-392   | F5V   | 0.00129411 |
| spSpec-51943-0300-207   | B6V   | 0.00128890 |
| spSpec-51993-0334-116   | F5V   | 0.00129059 |
| spSpec-51993-0334-277   | A8III | 0.00129395 |
| spSpec-51999-0286-241   | A8III | 0.00129456 |
| spSpec-52000-0335-411   | G0V   | 0.00128710 |
| spSpec-51609-0292-408   | A6V   | 0.00129977 |
| spSpec-51633-0268-017   | F5III | 0.00130416 |
| spSpec-51699-0349-328   | K0V   | 0.00130288 |
| spSpec-51909-0276-012   | A2V   | 0.00129798 |
| spSpec-51943-0300-057   | G3V   | 0.00129751 |
| spSpec-51957-0273-326   | F0V   | 0.00130026 |
| spSpec-51989-0363-358   | G3V   | 0.00130132 |
| spSpec-52282-0328-287   | F7V   | 0.00129746 |
| spSpec-52282-0328-368   | G3V   | 0.00129595 |
| spSpec-52313-0333-573   | G6V   | 0.00130341 |
| spSpec-51694-0338-562   | G3V   | 0.00131099 |
| spSpec-51789-0352-186   | A2V   | 0.00130508 |
| spSpec-51792-0354-029   | A6V   | 0.00131375 |
| spSpec-51908-0277-394   | F5V   | 0.00131390 |
| spSpec-51942-0301-335   | A6III | 0.00130500 |
| spSpec-51942-0301-367   | F0IV  | 0.00130516 |
| spSpec-51943-0300-148   | F0IV  | 0.00131469 |
| spSpec-51990-0310-250   | F0III | 0.00131270 |
| Catalog  |spectype | Filter | Continuum  |
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| spSpec-51990-0340-354 | G7V | 0.00130823 | spSpec-52368-0331-236 | A9V | 0.00133513 |
| spSpec-52000-0288-100 | F0III | 0.00131154 | spSpec-51609-0292-156 | G2V | 0.00135380 |
| spSpec-51609-0292-210 | A9V | 0.00132358 | spSpec-51630-0266-570 | A1V | 0.00135414 |
| spSpec-51614-0281-401 | G2V | 0.00132161 | spSpec-51658-0282-178 | G3V | 0.00135111 |
| spSpec-51614-0281-485 | F0V | 0.00132470 | spSpec-51673-0313-343 | F6V | 0.00134997 |
| spSpec-51630-0266-571 | A9V | 0.00132368 | spSpec-51673-0313-503 | A9V | 0.00134623 |
| spSpec-51662-0308-321 | G4V | 0.00131584 | spSpec-51909-0270-248 | G3V | 0.00135196 |
| spSpec-51780-0351-015 | G3V | 0.00131865 | spSpec-51909-0276-040 | G3V | 0.00134938 |
| spSpec-51900-0278-309 | G4V | 0.00131786 | spSpec-51943-0300-251 | A1V | 0.00135080 |
| spSpec-51955-0298-178 | A7V | 0.00134779 | spSpec-51957-0304-554 | F3IV | 0.00137074 |
| spSpec-51959-0283-554 | A6V | 0.00134859 | spSpec-51959-0283-023 | G3V | 0.00137374 |
| spSpec-51994-0293-387 | F4III | 0.00134681 | spSpec-51959-0297-358 | G4V | 0.00136558 |
| spSpec-52056-0329-470 | G2V | 0.00134702 | spSpec-51990-0310-154 | G3V | 0.00137375 |
| spSpec-52294-0327-183 | A8V | 0.00134679 | spSpec-51994-0309-542 | A9V | 0.00137220 |
| spSpec-52313-0333-326 | F6V | 0.00135387 | spSpec-52023-0287-459 | G2V | 0.00136643 |
| spSpec-52367-0332-460 | G3V | 0.00135102 | spSpec-51612-0280-584 | G6V | 0.00137661 |
| spSpec-51613-0305-066 | G3V | 0.00135811 | spSpec-51630-0266-259 | F8I | 0.00137739 |
| spSpec-51662-0308-427 | A9V | 0.00135750 | spSpec-51663-0307-317 | A2V | 0.00138170 |
| spSpec-51662-0308-433 | G3V | 0.00136085 | spSpec-51663-0307-343 | A6V | 0.00138480 |
| spSpec-51662-0308-483 | F6III | 0.00136288 | spSpec-51691-0342-482 | A7V | 0.00137840 |
| spSpec-51663-0307-391 | G3V | 0.00135912 | spSpec-51694-0338-292 | A7V | 0.00137550 |
| spSpec-51789-0352-063 | G1V | 0.00135738 | spSpec-51699-0349-325 | G3V | 0.00137516 |
| spSpec-51816-0360-240 | G4V | 0.00135905 | spSpec-51699-0349-454 | G2V | 0.00137613 |
| spSpec-51818-0358-019 | G2V | 0.00136386 | spSpec-51699-0349-619 | G4V | 0.00138180 |
| spSpec-51821-0359-454 | G3V | 0.00136113 | spSpec-51788-0355-504 | G3V | 0.00138404 |
| spSpec-51908-0277-276 | F7V | 0.00136347 | spSpec-51900-0278-449 | G3V | 0.00138035 |
| spSpec-51930-0285-186 | G3V | 0.00135933 | spSpec-51908-0277-397 | A6V | 0.00138329 |
| spSpec-51941-0290-097 | A3V | 0.00135698 | spSpec-51909-0276-240 | F0IV | 0.00137891 |
| SPSpec-ID         | Type  | Value  | SPSpec-ID         | Type  | Value  |
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| spSpec-51959-0297-123 | F6V   | 0.00136333 | spSpec-51910-0269-119 | G3V   | 0.00137559 |
| spSpec-51990-0310-208  | F0IV  | 0.00136204 | spSpec-51955-0298-237  | G3V   | 0.00138143 |
| spSpec-52000-0335-008   | F6III | 0.00135996 | spSpec-52023-0287-311   | A8V   | 0.00137746 |
| spSpec-52294-0327-561   | G2V   | 0.00135785 | spSpec-52294-0327-248   | A9V   | 0.00137802 |
| spSpec-52370-0330-067   | F5V   | 0.00136290 | spSpec-52313-0333-478   | A8III | 0.00138009 |
| spSpec-51608-0267-177   | G2V   | 0.00137236 | spSpec-51613-0305-354   | A9V   | 0.00138829 |
| spSpec-51662-0308-574   | F5II  | 0.00136963 | spSpec-51689-0312-093   | F6III | 0.00138592 |
| spSpec-51663-0307-626   | G2V   | 0.00137157 | spSpec-51691-0342-428   | A8V   | 0.00138576 |
| spSpec-51692-0339-330   | G6V   | 0.00137203 | spSpec-51821-0359-136   | A9V   | 0.00138511 |
| spSpec-51694-0338-518   | G2V   | 0.00137016 | spSpec-51821-0359-514   | G3V   | 0.00138850 |
| spSpec-51703-0353-583   | G6V   | 0.00137435 | spSpec-51821-0359-623   | F0V   | 0.00139482 |
| spSpec-51818-0358-251   | F5II  | 0.00136624 | spSpec-51943-0284-148   | G6V   | 0.00139460 |
| spSpec-51908-0277-143   | F0III | 0.00137493 | spSpec-51943-0284-294   | F7V   | 0.00138871 |
| spSpec-51930-0285-254   | G6V   | 0.00137061 | spSpec-51955-0298-580   | F0IV  | 0.00138546 |
| spSpec-51957-0304-286   | A2I   | 0.00138640 | spSpec-52282-0328-215   | A7V   | 0.00140971 |
| spSpec-51959-0297-359   | A2V   | 0.00139241 | spSpec-52313-0333-044   | A2V   | 0.00141266 |
| spSpec-51990-0289-093   | A8III | 0.00138924 | spSpec-52375-0326-010   | A9V   | 0.00140736 |
| spSpec-51990-0340-424   | F9V   | 0.00139089 | spSpec-51609-0292-296   | A8III | 0.00141798 |
| spSpec-51994-0293-494   | A2V   | 0.00138509 | spSpec-51671-0299-154   | A8V   | 0.00142099 |
| spSpec-51609-0292-067   | G4V   | 0.00140254 | spSpec-51688-0302-039   | G3V   | 0.00141992 |
| spSpec-51671-0299-270   | G2V   | 0.00139614 | spSpec-51690-0341-342   | F5II  | 0.00142153 |
| spSpec-51671-0299-326   | F3IV  | 0.00140131 | spSpec-51691-0350-127   | G3V   | 0.00142425 |
| spSpec-51691-0350-350   | G1V   | 0.00139625 | spSpec-51691-0350-240   | A9V   | 0.00141540 |
| spSpec-51792-0354-405   | G7V   | 0.00139551 | spSpec-51821-0359-229   | A2V   | 0.00142466 |
| spSpec-51900-0278-239   | G2V   | 0.00140281 | spSpec-51908-0277-308   | G6V   | 0.00142082 |
| spSpec-51900-0278-459   | A9V   | 0.00139963 | spSpec-51908-0277-347   | A8III | 0.00141531 |
| spSpec-51928-0291-079   | G2V   | 0.00139751 | spSpec-51910-0275-531   | G3V   | 0.00141819 |
| spSpec-51942-0301-100   | F0IV  | 0.00140042 | spSpec-51943-0300-310   | K0V   | 0.00141556 |
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| spSpec-51959-0297-539 | G4V    | 0.00140133  
| spSpec-51994-0293-193   | A3III  | 0.00139784  
| spSpec-52000-0288-373   | A2V    | 0.00140447  
| spSpec-52313-0333-005   | A2V    | 0.00139546  
| spSpec-52375-0326-266   | F6V    | 0.00140348  
| spSpec-51612-0280-348   | G3V    | 0.00140864  
| spSpec-51633-0268-137   | F5II   | 0.00140538  
| spSpec-51792-0354-078   | G3V    | 0.00140820  
| spSpec-51792-0354-389   | F0IV   | 0.00140989  
| spSpec-51821-0359-556   | G6III  | 0.00141486  
| spSpec-51909-0276-625   | G3V    | 0.00141190  
| spSpec-51985-0295-106   | A9V    | 0.00140573  
| spSpec-51986-0294-411   | F6V    | 0.00141282  
| spSpec-51989-0363-594   | F0IV   | 0.00140923  
| spSpec-51994-0309-069   | A8V    | 0.00140805  
| spSpec-51999-0286-548   | F5III  | 0.00140828  
| spSpec-52000-0288-207   | F0III  | 0.00140845  
| spSpec-52294-0327-545   | G3V    | 0.00143064  
| spSpec-52370-0330-430   | A8III  | 0.00143358  
| spSpec-51688-0302-131   | G3V    | 0.00144242  
| spSpec-51689-0312-107   | G3V    | 0.00144037  
| spSpec-51789-0352-204   | G6V    | 0.00143890  
| spSpec-51957-0273-277   | G0V    | 0.00143786  
| spSpec-51959-0297-073   | G3V    | 0.00144496  
| spSpec-51994-0293-317   | F0III  | 0.00143723  
| spSpec-51994-0309-398   | G3V    | 0.00144387  
| spSpec-51984-0279-434   | G6V    | 0.00141901  
| spSpec-52000-0288-482   | A3V    | 0.00142422  
| spSpec-52367-0332-184   | O9V    | 0.00142028  
| spSpec-51612-0280-086   | G4V    | 0.00143126  
| spSpec-51662-0308-587   | G2V    | 0.00143279  
| spSpec-51671-0299-410   | F5III  | 0.00143450  
| spSpec-51688-0302-590   | G4V    | 0.00142526  
| spSpec-51883-0271-333   | F7III  | 0.00143322  
| spSpec-51909-0276-389   | B8V    | 0.00143454  
| spSpec-51941-0290-626   | A9V    | 0.00143308  
| spSpec-51941-0290-632   | G2V    | 0.00143346  
| spSpec-51943-0300-219   | K0V    | 0.00142980  
| spSpec-51943-0300-595   | G6V    | 0.00142500  
| spSpec-51959-0283-356   | A8V    | 0.00143439  
| spSpec-51984-0296-316   | F6III  | 0.00143279  
| spSpec-51994-0309-394   | G3V    | 0.00142506  
| spSpec-51997-0337-615   | F6V    | 0.00143227  
| spSpec-51999-0286-255   | F3V    | 0.00142664  
| spSpec-51615-0303-639   | G2V    | 0.00147136  
| spSpec-51662-0308-134   | G3V    | 0.00147074  
| spSpec-51663-0307-382   | G3V    | 0.00146826  
| spSpec-51665-0311-133   | G3V    | 0.00146987  
| spSpec-51689-0312-485   | G3V    | 0.00147130  
| spSpec-51691-0350-583   | G3V    | 0.00146550  
| spSpec-51694-0338-506   | G7V    | 0.00147276  
| spSpec-51699-0349-521   | A9V    | 0.00147314  
| spSpec-51699-0349-566   | G3V    | 0.00146718  

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| spSpec-52017-0366-351 | K0V | 0.00144234 | spSpec-51909-0270-247 | G2V | 0.00147134 |
| spSpec-51609-0292-155 | A8III | 0.00145135 | spSpec-51910-0275-402 | A7V | 0.00146768 |
| spSpec-51612-0280-593 | F7III | 0.00145028 | spSpec-51930-0285-238 | F0III | 0.00146951 |
| spSpec-51688-0302-570 | G4V | 0.00145354 | spSpec-51942-0301-005 | G2V | 0.00147386 |
| spSpec-51792-0354-461 | G6V | 0.00144686 | spSpec-51957-0304-273 | G3V | 0.00146741 |
| spSpec-51910-0269-290 | K0V | 0.00144668 | spSpec-51990-0310-369 | A6V | 0.00146523 |
| spSpec-51910-0275-493 | F0V | 0.00144580 | spSpec-51990-0340-564 | A8V | 0.00146579 |
| spSpec-51955-0298-400 | G7V | 0.00144714 | spSpec-51658-0282-483 | G0V | 0.00147778 |
| spSpec-51989-0363-627 | F4III | 0.00145345 | spSpec-51662-0308-475 | A9V | 0.00147716 |
| spSpec-51990-0289-204 | B8I | 0.00145200 | spSpec-51663-0315-516 | G3V | 0.00147892 |
| spSpec-51994-0293-420 | G3V | 0.00144646 | spSpec-51688-0302-522 | A8V | 0.00148471 |
| spSpec-52023-0287-453 | A6V | 0.00145461 | spSpec-51792-0354-220 | G3V | 0.00147549 |
| spSpec-52294-0327-182 | F0III | 0.00144565 | spSpec-51816-0360-003 | G4V | 0.00148266 |
| spSpec-51612-0280-202 | G3V | 0.00146381 | spSpec-51908-0277-561 | A9V | 0.00147677 |
| spSpec-51630-0266-082 | F0V | 0.00145844 | spSpec-51910-0275-548 | G6V | 0.00148306 |
| spSpec-51816-0360-534 | K0V | 0.00146261 | spSpec-51941-0290-292 | F0III | 0.00147540 |
| spSpec-51821-0359-555 | G7V | 0.00145911 | spSpec-51942-0301-624 | F5III | 0.00148150 |
| spSpec-51908-0277-637 | A7V | 0.00145566 | spSpec-51986-0294-168 | A7V | 0.00147529 |
| spSpec-51910-0269-303 | G2V | 0.00145752 | spSpec-52000-0288-093 | G3V | 0.00148484 |
| spSpec-51910-0275-463 | G3V | 0.00145992 | spSpec-52313-0333-067 | A9V | 0.00148467 |
| spSpec-51959-0283-395 | F0III | 0.00145684 | spSpec-51658-0282-078 | A9V | 0.00149493 |
| spSpec-51990-0289-373 | F0IV | 0.00145650 | spSpec-51909-0276-404 | G3V | 0.00148819 |
| spSpec-52294-0327-239 | G1V | 0.00146442 | spSpec-51942-0301-254 | A9V | 0.00148910 |
| spSpec-51609-0292-232 | A7V | 0.00146551 | spSpec-51955-0298-590 | F0IV | 0.00149000 |
| spSpec-51959-0283-326 | A7V | 0.00148557 | spSpec-51930-0285-233 | F6V | 0.00152384 |
| spSpec-51985-0295-039 | A9V | 0.00149239 | spSpec-51943-0300-473 | G3V | 0.00151773 |
| spSpec-51997-0337-032 | G6V | 0.00149157 | spSpec-51957-0273-387 | F0III | 0.00151740 |
| spSpec-52367-0332-261 | A7V | 0.00149419 | spSpec-51959-0297-351 | G4V | 0.00151705 |
| Source          | Type | Value | Source          | Type | Value |
|-----------------|------|-------|-----------------|------|-------|
| spSpec-52370-0330-373 | G7V  | 0.00148857 | spSpec-51984-0296-461 | G3V  | 0.00152140 |
| spSpec-51662-0308-436   | A0I  | 0.00149764 | spSpec-52023-0287-113 | G3V  | 0.00152029 |
| spSpec-51691-0342-066   | G2V  | 0.00149874 | spSpec-52023-0287-138 | G2V  | 0.00151869 |
| spSpec-51959-0283-200   | F6V  | 0.00150038 | spSpec-51614-0281-294 | F7V  | 0.00152768 |
| spSpec-51959-0283-500   | F7V  | 0.00150097 | spSpec-51614-0281-519 | F4III | 0.00152768 |
| spSpec-51986-0294-370   | F7V  | 0.00150494 | spSpec-51671-0299-042 | G2V  | 0.00152755 |
| spSpec-51990-0310-213   | F5III| 0.00149789 | spSpec-51789-0352-167 | F6III | 0.00153122 |
| spSpec-51993-0334-452   | G3V  | 0.00150036 | spSpec-51816-0360-351 | G5IV  | 0.00152954 |
| spSpec-51994-0293-222   | A6V  | 0.00150094 | spSpec-51909-0276-109 | F0IV  | 0.00153110 |
| spSpec-51994-0309-395   | G4V  | 0.00150051 | spSpec-51909-0276-411 | F8I  | 0.00153315 |
| spSpec-51997-0337-440   | A3V  | 0.00149944 | spSpec-51910-0269-283 | G3V  | 0.00152909 |
| spSpec-52368-0331-297   | A8V  | 0.00149504 | spSpec-51941-0290-385 | G3V  | 0.00153140 |
| spSpec-51613-0305-421   | G7V  | 0.00151238 | spSpec-51943-0300-246 | F7V  | 0.00152972 |
| spSpec-51910-0275-268   | G6V  | 0.00150524 | spSpec-51957-0304-533 | F0IV  | 0.00152520 |
| spSpec-51910-0275-423   | A6V  | 0.00151442 | spSpec-51986-0294-512 | F9V  | 0.00152654 |
| spSpec-51959-0283-576   | G3V  | 0.00150867 | spSpec-51990-0289-428 | F0III | 0.00152513 |
| spSpec-51990-0310-256   | A7V  | 0.00150910 | spSpec-51990-0310-180 | A8III | 0.00152642 |
| spSpec-51994-0309-541   | F5III| 0.00151377 | spSpec-52000-0335-264 | B9III | 0.00152658 |
| spSpec-52000-0288-146   | F5III| 0.00150859 | spSpec-52368-0331-060 | F6V  | 0.00152553 |
| spSpec-51608-0267-417   | B7III| 0.00152209 | spSpec-52370-0330-037 | G2V  | 0.00152835 |
| spSpec-51633-0268-215   | F6III| 0.00151511 | spSpec-51613-0305-391 | F5II  | 0.00154384 |
| spSpec-51637-0306-037   | F0III| 0.00151996 | spSpec-51658-0282-220 | A7V  | 0.00154146 |
| spSpec-51688-0302-308   | G3V  | 0.00152494 | spSpec-51688-0302-479 | A7V  | 0.00154326 |
| spSpec-51691-0350-239   | A2V  | 0.00151696 | spSpec-51689-0312-196 | F0V  | 0.00154254 |
| spSpec-51699-0349-375   | G3V  | 0.00152459 | spSpec-51689-0312-268 | F7V  | 0.00153791 |
| spSpec-51789-0352-526   | F9V  | 0.00152230 | spSpec-51928-0291-321 | G4V  | 0.00153889 |
| spSpec-51818-0358-565   | A9V  | 0.00152071 | spSpec-51941-0290-422 | F6V  | 0.00153866 |
| spSpec-51821-0359-197   | B7III| 0.00151509 | spSpec-51943-0300-243 | F5II  | 0.00154056 |
| Object          | Type   | Value 1  | Object          | Type   | Value 1  |
|-----------------|--------|----------|-----------------|--------|----------|
| spSpec-51908-0277-121 | G3V    | 0.00151699 | spSpec-51943-0300-435 | G7V    | 0.00153749 |
| spSpec-51957-0304-204   | K0V    | 0.00154443 | spSpec-51994-0293-465 | G3V    | 0.00156320 |
| spSpec-51959-0283-304   | F5V    | 0.00153539 | spSpec-52367-0332-048 | G3V    | 0.00155647 |
| spSpec-51984-0279-406   | A9V    | 0.00153815 | spSpec-52375-0326-277 | F9V    | 0.00155825 |
| spSpec-51984-0296-007   | G3V    | 0.00153563 | spSpec-51637-0306-396 | F5II   | 0.00156805 |
| spSpec-51990-0340-411   | G3V    | 0.00154141 | spSpec-51780-0351-109 | K0III  | 0.00156690 |
| spSpec-51994-0309-086   | F5II   | 0.00153737 | spSpec-51780-0351-545 | G3V    | 0.00157017 |
| spSpec-52017-0366-375   | G3V    | 0.00153723 | spSpec-51909-0276-284 | F5V    | 0.00156577 |
| spSpec-51613-0305-229   | G0V    | 0.00155026 | spSpec-51942-0301-401 | A3I    | 0.00156747 |
| spSpec-51613-0305-317   | F5II   | 0.00155328 | spSpec-51955-0298-338 | G4V    | 0.00156843 |
| spSpec-51615-0303-300   | G3V    | 0.00154670 | spSpec-51957-0304-551 | F4I    | 0.00157235 |
| spSpec-51637-0306-499   | G6V    | 0.00154791 | spSpec-51959-0283-142 | A1V    | 0.00156861 |
| spSpec-51691-0350-537   | F6III  | 0.00154674 | spSpec-51994-0309-251 | G4V    | 0.00156685 |
| spSpec-51788-0355-163   | G3V    | 0.00154889 | spSpec-51994-0309-614 | F7V    | 0.00156712 |
| spSpec-51928-0291-426   | F9V    | 0.00155370 | spSpec-52000-0335-377 | F7V    | 0.00156750 |
| spSpec-51930-0285-313   | A8III  | 0.00155101 | spSpec-52282-0328-065 | G2V    | 0.00157473 |
| spSpec-51941-0290-527   | A6V    | 0.00155477 | spSpec-52368-0331-545 | F5III  | 0.00157345 |
| spSpec-51955-0298-293   | K4III  | 0.00154753 | spSpec-51658-0282-157 | A8V    | 0.00158437 |
| spSpec-51990-0340-077   | F7V    | 0.00154842 | spSpec-51688-0302-140 | A9V    | 0.00157803 |
| spSpec-52000-0288-430   | G3V    | 0.00155471 | spSpec-51689-0312-263 | F0IV   | 0.00158123 |
| spSpec-52370-0330-013   | F5II   | 0.00155444 | spSpec-51703-0353-164 | B2III  | 0.00157621 |
| spSpec-52370-0330-582   | F9V    | 0.00155167 | spSpec-51928-0291-269 | G3V    | 0.00158347 |
| spSpec-51662-0308-518   | A2V    | 0.00155530 | spSpec-51943-0300-426 | A9V    | 0.00157849 |
| spSpec-51663-0307-123   | A9V    | 0.00155821 | spSpec-52000-0335-395 | G2V    | 0.00157586 |
| spSpec-51671-0299-418   | F0III  | 0.00156154 | spSpec-52294-0327-352 | F5III  | 0.00157502 |
| spSpec-51688-0302-167   | A4I    | 0.00156048 | spSpec-52367-0332-589 | F6III  | 0.00157590 |
| spSpec-51688-0302-388   | G3V    | 0.00155765 | spSpec-52375-0326-523 | A1V    | 0.00158151 |
| spSpec-51780-0351-466   | A8III  | 0.00155721 | spSpec-51609-0292-011 | F7V    | 0.00159175 |
| Object   | Spectral Type | Reddening | Object   | Spectral Type | Reddening |
|----------|---------------|-----------|----------|---------------|-----------|
| spSpec-51821-0359-286 | F6V          | 0.00155567 | spSpec-51692-0343-434 | A7V          | 0.00159003 |
| spSpec-51910-0269-608 | F0IV         | 0.00155951 | spSpec-51694-0338-263 | G3V          | 0.00158998 |
| spSpec-51930-0285-091 | G2V          | 0.00155726 | spSpec-51910-0275-135 | G3V          | 0.00158840 |
| spSpec-51930-0285-532 | F0III        | 0.00156149 | spSpec-52000-0335-353 | F7V          | 0.00158508 |
| spSpec-51990-0340-408 | F0V          | 0.00156247 | spSpec-52313-0333-580 | B8III        | 0.00158838 |
| spSpec-51993-0334-003 | A9V          | 0.00156297 | spSpec-52375-0326-088 | A7V          | 0.00159101 |
| spSpec-51615-0303-242 | G6V          | 0.00159733 | spSpec-51671-0299-534 | F0IV         | 0.00162562 |
| spSpec-51658-0282-397 | F6III        | 0.00159978 | spSpec-51792-0354-130 | F3V          | 0.00162557 |
| spSpec-51690-0341-313 | G4V          | 0.00160293 | spSpec-51930-0285-593 | F5III        | 0.00162752 |
| spSpec-51780-0351-113 | G3V          | 0.00160115 | spSpec-51941-0272-044 | F8I          | 0.00162696 |
| spSpec-51908-0277-424 | G3V          | 0.00160038 | spSpec-51943-0300-368 | G3V          | 0.00162984 |
| spSpec-51928-0291-384 | F8I          | 0.00159963 | spSpec-51994-0309-047 | G4V          | 0.00162569 |
| spSpec-51959-0283-393 | A4I          | 0.00160173 | spSpec-52294-0327-393 | F5III        | 0.00162573 |
| spSpec-51984-0279-475 | G4V          | 0.00160138 | spSpec-52313-0333-135 | G3V          | 0.00163485 |
| spSpec-51986-0294-049 | A1V          | 0.00159572 | spSpec-51614-0281-438 | A2V          | 0.00163972 |
| spSpec-51997-0337-139 | A7V          | 0.00160012 | spSpec-51692-0339-325 | F0III        | 0.00164096 |
| spSpec-52282-0328-147 | F0V          | 0.00160411 | spSpec-51910-0269-047 | G6V          | 0.00163826 |
| spSpec-52294-0327-264 | F0IV         | 0.00160238 | spSpec-51928-0291-188 | F9V          | 0.00164285 |
| spSpec-52294-0327-278 | A2V          | 0.00160285 | spSpec-51943-0300-291 | F0III        | 0.00163541 |
| spSpec-52367-0332-283 | A2V          | 0.00160322 | spSpec-51955-0298-047 | G2V          | 0.00163594 |
| spSpec-52370-0330-599 | F5III        | 0.00160337 | spSpec-52313-0333-550 | F6III        | 0.00164289 |
| spSpec-51780-0351-565 | G4V          | 0.00161203 | spSpec-51613-0305-392 | A9V          | 0.00164647 |
| spSpec-51943-0300-237 | A1V          | 0.00161341 | spSpec-51658-0282-103 | G4V          | 0.00164665 |
| spSpec-51957-0273-129 | A9V          | 0.00160878 | spSpec-51663-0307-213 | F7V          | 0.00165059 |
| spSpec-51957-0304-393 | F0V          | 0.00160731 | spSpec-51792-0354-201 | F3V          | 0.00164817 |
| spSpec-51994-0309-495 | A3III        | 0.00160524 | spSpec-51908-0277-319 | A8III        | 0.00165243 |
| spSpec-52294-0327-078 | F7V          | 0.00160726 | spSpec-51986-0294-412 | F7V          | 0.00164825 |
| spSpec-52367-0332-494 | F6III        | 0.00161337 | spSpec-51989-0363-328 | F7V          | 0.00164897 |
| Source             | Type | Value 1 | Source             | Type | Value 2 |
|-------------------|------|---------|-------------------|------|---------|
| spSpec-52368-0331-033 | G3V  | 0.00161158 | spSpec-51994-0293-567 | A1V  | 0.00165216 |
| spSpec-51662-0308-183 | G4V  | 0.00161565 | spSpec-52000-0335-610 | F0IV | 0.00165413 |
| spSpec-51662-0308-498 | A8III | 0.00161867 | spSpec-51615-0303-514 | F7V  | 0.00165664 |
| spSpec-51689-0312-533 | G3V  | 0.00162331 | spSpec-51663-0315-530 | G7V  | 0.00165505 |
| spSpec-51691-0342-640 | A1V  | 0.00162171 | spSpec-51671-0299-572 | F5V  | 0.00165631 |
| spSpec-51699-0349-517  | G3V  | 0.00161595 | spSpec-51673-0313-250 | G3V  | 0.00165883 |
| spSpec-51883-0271-123  | A2V  | 0.00162434 | spSpec-51690-0341-529 | F9V  | 0.00166402 |
| spSpec-51959-0283-027  | F7V  | 0.00161836 | spSpec-51789-0352-567 | F9V  | 0.00166125 |
| spSpec-51959-0297-399  | A1V  | 0.00161877 | spSpec-51908-0277-377 | G2V  | 0.00165564 |
| spSpec-51984-0296-497  | A1V  | 0.00162024 | spSpec-51908-0277-454 | G4V  | 0.00165604 |
| spSpec-51999-0286-607  | G3V  | 0.00161851 | spSpec-51957-0273-259 | G3V  | 0.00166490 |
| spSpec-51986-0294-377  | A7V  | 0.00166159 | spSpec-51792-0354-573 | A9V  | 0.00169260 |
| spSpec-51990-0340-591  | F6III| 0.00165940 | spSpec-51909-0276-582 | G3V  | 0.00169426 |
| spSpec-52023-0287-381  | G3V  | 0.00165655 | spSpec-51957-0304-582 | F5II | 0.00169009 |
| spSpec-51614-0281-632  | G4V  | 0.00166754 | spSpec-51959-0283-431 | A7V  | 0.00168581 |
| spSpec-51615-0303-532  | G3V  | 0.00166763 | spSpec-51959-0283-553 | G3V  | 0.00168644 |
| spSpec-51630-0266-098  | B8I  | 0.00167236 | spSpec-51989-0363-209 | G4V  | 0.00169069 |
| spSpec-51671-0299-564  | F5III| 0.00166711 | spSpec-51990-0340-054 | F7V  | 0.00168684 |
| spSpec-51692-0339-555  | F6III| 0.00166669 | spSpec-51997-0337-219 | F0III| 0.00169424 |
| spSpec-51694-0338-440  | A8V  | 0.00166668 | spSpec-52056-0329-207 | G2V  | 0.00169412 |
| spSpec-51703-0353-233  | A7V  | 0.00166866 | spSpec-52313-0333-363 | G6V  | 0.00169256 |
| spSpec-51913-0274-304  | G4V  | 0.00166770 | spSpec-51613-0305-315 | G1V  | 0.00169519 |
| spSpec-51930-0285-036  | G4V  | 0.00166750 | spSpec-51671-0299-194 | A8V  | 0.00169937 |
| spSpec-51984-0279-064  | G3V  | 0.00166898 | spSpec-51671-0299-338 | G2V  | 0.00169804 |
| spSpec-51984-0279-321  | F0III| 0.00167441 | spSpec-51699-0349-262 | F0V  | 0.00170009 |
| spSpec-51612-0280-478  | G3V  | 0.00167545 | spSpec-51788-0355-203 | F0IV | 0.00170039 |
| spSpec-51615-0303-283  | A9V  | 0.00168373 | spSpec-51816-0360-130 | A7V  | 0.00169602 |
| spSpec-51658-0282-575  | B8V  | 0.00167640 | spSpec-51821-0359-602 | F0III| 0.00169875 |
|     |     |     |     |
|-----|-----|-----|-----|
| spSpec-51663-0307-594 | F0III | 0.00168297 | spSpec-51930-0285-370 | F5III | 0.00169688 |
| spSpec-51673-0313-277 | A8V | 0.00168012 | spSpec-51959-0283-398 | F5III | 0.00169656 |
| spSpec-51816-0360-283 | F9V | 0.00168259 | spSpec-51997-0337-261 | B9III | 0.00170242 |
| spSpec-51818-0358-331 | G4V | 0.00168341 | spSpec-51997-0337-580 | F0IV | 0.00169622 |
| spSpec-51900-0278-488 | G3V | 0.00167676 | spSpec-52367-0332-238 | G4V | 0.00169941 |
| spSpec-51909-0270-443 | G2V | 0.00167967 | spSpec-51662-0308-077 | A8III | 0.00170823 |
| spSpec-51943-0300-516 | A7V | 0.00167654 | spSpec-51662-0308-571 | F6V | 0.00171103 |
| spSpec-51957-0304-489 | F9V | 0.00168359 | spSpec-51689-0312-582 | G3V | 0.00171032 |
| spSpec-51999-0286-203 | A8III | 0.00167872 | spSpec-51690-0341-307 | G4V | 0.00170955 |
| spSpec-51637-0306-237 | A8III | 0.00168895 | spSpec-51691-0350-574 | F7V | 0.00170931 |
| spSpec-51663-0315-040 | F3V | 0.00169013 | spSpec-51913-0274-027 | F0V | 0.00170545 |
| spSpec-51665-0311-304 | F7V | 0.00168559 | spSpec-51959-0283-185 | F6III | 0.00170737 |
| spSpec-51665-0311-354 | G3V | 0.00169009 | spSpec-51986-0294-174 | A7V | 0.00171100 |
| spSpec-51694-0338-268 | F6V | 0.00168660 | spSpec-51990-0340-129 | F6V | 0.00171031 |
| spSpec-51780-0351-043 | K0V | 0.00169125 | spSpec-51993-0334-091 | A8V | 0.00171213 |
| spSpec-51788-0355-608 | O7.5V | 0.00168502 | spSpec-52000-0335-406 | A9V | 0.00171232 |
| spSpec-52017-0366-103 | G4V | 0.00170981 | spSpec-52368-0331-264 | G2V | 0.00173687 |
| spSpec-52017-0366-272 | A6V | 0.00171276 | spSpec-52375-0326-110 | F6V | 0.00174172 |
| spSpec-52375-0326-409 | G2V | 0.00170874 | spSpec-51609-0292-407 | F0III | 0.00174767 |
| spSpec-51663-0307-355 | F6III | 0.00172389 | spSpec-51665-0311-491 | G6III | 0.00175227 |
| spSpec-51671-0299-184 | F9V | 0.00171687 | spSpec-51690-0341-353 | F5III | 0.00175357 |
| spSpec-51690-0341-344 | A6V | 0.00171748 | spSpec-51692-0339-150 | F7V | 0.00175467 |
| spSpec-51691-0350-020 | F7V | 0.00171644 | spSpec-51692-0343-437 | G4V | 0.00175374 |
| spSpec-51788-0355-052 | F9V | 0.00171725 | spSpec-51694-0338-163 | F0III | 0.00175114 |
| spSpec-51816-0360-635 | G4V | 0.00172188 | spSpec-51780-0351-531 | F5V | 0.00174761 |
| spSpec-51900-0278-220 | F7V | 0.00171943 | spSpec-51780-0351-559 | F9V | 0.00175319 |
| spSpec-51908-0277-416 | A9V | 0.00171951 | spSpec-51821-0359-123 | F9V | 0.00174508 |
| spSpec-51930-0285-255 | G2V | 0.00172224 | spSpec-51883-0271-639 | G3V | 0.00175423 |
| spSpec-51613-0305-316 | F9V  | 0.00172974 | spSpec-51928-0291-274 | F6V  | 0.00175303 |
|----------------------|------|------------|----------------------|------|------------|
| spSpec-51699-0349-193 | O9V  | 0.00173469 | spSpec-51959-0297-211 | G1V  | 0.00174678 |
| spSpec-51789-0352-637 | G3V  | 0.00172823 | spSpec-51990-0310-515 | G6V  | 0.00175194 |
| spSpec-51943-0284-561 | G2V  | 0.00172647 | spSpec-51993-0334-068 | F6V  | 0.00174807 |
| spSpec-51957-0273-036 | A8V  | 0.00173349 | spSpec-51997-0337-263 | A9V  | 0.00174620 |
| spSpec-51990-0289-268 | A7V  | 0.00172734 | spSpec-52000-0288-198 | G6V  | 0.00174765 |
| spSpec-51994-0309-522 | G5III | 0.00172599 | spSpec-52282-0328-242 | F0IV | 0.00174584 |
| spSpec-51997-0337-317 | A2V  | 0.00173228 | spSpec-51630-0266-394 | A3III | 0.00176156 |
| spSpec-51999-0286-617 | G2V  | 0.00172679 | spSpec-51633-0268-344 | G3V  | 0.00175788 |
| spSpec-52023-0287-232 | F0V  | 0.00173084 | spSpec-51637-0306-349 | G4V  | 0.00176099 |
| spSpec-52368-0331-614 | G0V  | 0.00173495 | spSpec-51658-0282-485 | G3V  | 0.00176418 |
| spSpec-51673-0313-469 | G3V  | 0.00174233 | spSpec-51658-0282-530 | F5V  | 0.00175934 |
| spSpec-51691-0350-316 | G2V  | 0.00174127 | spSpec-51662-0308-050 | F0V  | 0.00175619 |
| spSpec-51942-0301-031 | A9V  | 0.00174423 | spSpec-51816-0360-294 | K0V  | 0.00176442 |
| spSpec-51957-0304-406 | G3V  | 0.00173883 | spSpec-51818-0358-045 | F9V  | 0.00175655 |
| spSpec-51986-0294-386 | A6V  | 0.00173963 | spSpec-51909-0276-451 | K0V  | 0.00176475 |
| spSpec-51989-0363-389 | G7V  | 0.00174073 | spSpec-51930-0285-287 | G2V  | 0.00175779 |
| spSpec-51990-0310-200 | A8V  | 0.00174273 | spSpec-51957-0273-504 | F0V  | 0.00176146 |
| spSpec-51993-0334-198 | G4V  | 0.00174048 | spSpec-51984-0279-211 | G3V  | 0.00175623 |
| spSpec-52000-0288-501 | G0III | 0.00173954 | spSpec-51985-0295-037 | G3V  | 0.00176294 |
| spSpec-52313-0333-500 | G3V  | 0.00174111 | spSpec-51990-0289-280 | A8V  | 0.00175501 |
| spSpec-51990-0310-131 | A8III | 0.00176329 | spSpec-51662-0308-437 | F4III | 0.00179874 |
| spSpec-52023-0287-493 | A9V  | 0.00175965 | spSpec-51663-0307-473 | B1III | 0.00179837 |
| spSpec-52313-0333-282 | G6V  | 0.00176399 | spSpec-51671-0299-547 | G4V  | 0.00180139 |
| spSpec-51637-0306-621 | G4V  | 0.00177129 | spSpec-51691-0342-625 | G4V  | 0.00180073 |
| spSpec-51662-0308-547 | F7V  | 0.00176665 | spSpec-51789-0352-082 | G4V  | 0.00179935 |
| spSpec-51663-0307-419 | G3V  | 0.00177171 | spSpec-51908-0277-458 | A8V  | 0.00179693 |
| spSpec-51663-0307-429 | A1V  | 0.00176586 | spSpec-51909-0276-047 | G3V  | 0.00179949 |
| spSpec-51699-0349-540 | G3V | 0.00177386 | spSpec-51909-0276-262 | F6III | 0.00179758 |
|------------------------|-----|------------|-----------------------|------|------------|
| spSpec-51780-0351-608  | G2III | 0.00176844 | spSpec-51955-0298-048  | B2III | 0.00179886 |
| spSpec-51928-0291-438  | F7V  | 0.00177316 | spSpec-52000-0335-227  | F5V  | 0.00180090 |
| spSpec-51942-0301-225  | A8III | 0.00176804 | spSpec-52000-0335-503  | A8III | 0.00180365 |
| spSpec-51990-0289-101  | A2V  | 0.00176897 | spSpec-52017-0366-073  | B1III | 0.00180334 |
| spSpec-51990-0310-500  | G4V  | 0.00177152 | spSpec-51612-0280-261  | K0V  | 0.00180771 |
| spSpec-52000-0288-530  | F7V  | 0.00177251 | spSpec-51691-0350-365  | G2V  | 0.00180966 |
| spSpec-52313-0333-349  | G3V  | 0.00177399 | spSpec-51818-0358-450  | F9V  | 0.00181401 |
| spSpec-52367-0332-564  | A2V  | 0.00176850 | spSpec-51821-0359-270  | A7V  | 0.00181186 |
| spSpec-51637-0306-376  | A9V  | 0.00178226 | spSpec-51941-0272-120  | G3V  | 0.00180555 |
| spSpec-51637-0306-388  | A7V  | 0.00177571 | spSpec-51943-0284-469  | A7V  | 0.00180551 |
| spSpec-51662-0308-413  | A9V  | 0.00178363 | spSpec-52367-0332-416  | F4III | 0.00180892 |
| spSpec-51663-0315-588  | A8III | 0.00177539 | spSpec-51609-0292-281  | F3IV  | 0.00182478 |
| spSpec-51816-0360-541  | F9V  | 0.00178480 | spSpec-51630-0266-620  | G2V  | 0.00182364 |
| spSpec-51943-0284-249  | F0III | 0.00178483 | spSpec-51673-0313-308  | A9V  | 0.00182231 |
| spSpec-51612-0280-258  | F7V  | 0.00179350 | spSpec-51689-0312-285  | G9III | 0.00181964 |
| spSpec-51699-0349-543  | F7V  | 0.00179116 | spSpec-51703-0353-061  | F9V  | 0.00181991 |
| spSpec-51928-0291-471  | F5V  | 0.00179381 | spSpec-51780-0351-474  | F5V  | 0.00182438 |
| spSpec-51943-0300-102  | A3V  | 0.00179047 | spSpec-51909-0270-021  | G3V  | 0.00181710 |
| spSpec-51957-0304-343  | G1V  | 0.00178543 | spSpec-51913-0274-532  | G3V  | 0.00181880 |
| spSpec-51990-0310-001  | A9I  | 0.00178762 | spSpec-51942-0301-611  | G3V  | 0.00182300 |
| spSpec-51994-0293-231  | F6III | 0.00178549 | spSpec-51959-0297-541  | F7V  | 0.00181569 |
| spSpec-52000-0288-517  | A3III | 0.00179351 | spSpec-51999-0336-363  | F3IV  | 0.00182254 |
| spSpec-52000-0335-486  | A6V  | 0.00178858 | spSpec-51821-0359-591  | K0I  | 0.00183392 |
| spSpec-51637-0306-614  | G4V  | 0.00179891 | spSpec-51930-0285-276  | G3V  | 0.00183142 |
| spSpec-51662-0308-299  | G6V  | 0.00180261 | spSpec-51943-0300-217  | A8V  | 0.00183422 |
| spSpec-51986-0294-355  | G0V  | 0.00183407 | spSpec-51691-0350-479  | A8III | 0.00185685 |
| spSpec-51994-0309-337  | F0IV  | 0.00182624 | spSpec-51909-0270-131  | G3V  | 0.00186457 |
| Source ID | Type   | Value 1  | Source ID | Type   | Value 1  |
|-----------|--------|----------|-----------|--------|----------|
| spSpec-51999-0286-300 | G4V   | 0.00183473 | spSpec-51910-0269-300 | B8V   | 0.00186299 |
| spSpec-51609-0292-324  | F8III | 0.00183810 | spSpec-51941-0272-489  | F7V   | 0.00186157 |
| spSpec-51637-0306-189  | G2V   | 0.00184463 | spSpec-51942-0301-390  | F5III | 0.00186383 |
| spSpec-51662-0308-083  | A1II  | 0.00183806 | spSpec-51943-0300-216  | F9V   | 0.00186069 |
| spSpec-51909-0276-453  | G4V   | 0.00184108 | spSpec-51955-0298-616  | A8III | 0.00185583 |
| spSpec-51909-0276-618  | F7V   | 0.00184495 | spSpec-51957-0304-313  | A2V   | 0.00186206 |
| spSpec-51941-0290-002  | F6V   | 0.00183593 | spSpec-51957-0304-362  | F7V   | 0.00185668 |
| spSpec-51942-0301-318  | A9V   | 0.00183962 | spSpec-51959-0283-473  | F6III | 0.00186260 |
| spSpec-51990-0310-054  | G4V   | 0.00184394 | spSpec-51990-0340-353  | G1V   | 0.00185627 |
| spSpec-51993-0334-096  | G3V   | 0.00183776 | spSpec-51993-0334-333  | F5III | 0.00185682 |
| spSpec-52017-0366-317  | G9III | 0.00184441 | spSpec-51993-0334-614  | A8V   | 0.00185870 |
| spSpec-52056-0329-593  | A8III | 0.00183593 | spSpec-51994-0293-132  | F5III | 0.00186219 |
| spSpec-52313-0333-024  | F5III | 0.00183529 | spSpec-52294-0327-328  | F8III | 0.00185947 |
| spSpec-52368-0331-501  | F0IV  | 0.00183822 | spSpec-52375-0326-005  | A8III | 0.00186395 |
| spSpec-51609-0292-101  | F5III | 0.00185444 | spSpec-51612-0280-171  | G3V   | 0.00186853 |
| spSpec-51662-0308-109  | F0V   | 0.00185392 | spSpec-51688-0302-401  | A9I   | 0.00186698 |
| spSpec-51662-0308-307  | A1V   | 0.00184628 | spSpec-51692-0339-118  | G3V   | 0.00186736 |
| spSpec-51663-0315-302  | G9III | 0.00185287 | spSpec-51943-0284-535  | F7V   | 0.00187449 |
| spSpec-51671-0299-302  | A1V   | 0.00185349 | spSpec-51955-0298-458  | G3V   | 0.00186796 |
| spSpec-51689-0312-353  | G2V   | 0.00184967 | spSpec-51957-0273-377  | A8III | 0.00186659 |
| spSpec-51690-0341-483  | G3V   | 0.00184906 | spSpec-51986-0294-634  | A9V   | 0.00187353 |
| spSpec-51913-0274-374  | G3V   | 0.00184906 | spSpec-52367-0332-047  | F5III | 0.00187461 |
| spSpec-51941-0290-316  | F0III | 0.00185326 | spSpec-52375-0326-337  | F5V   | 0.00186576 |
| spSpec-51990-0340-420  | G2V   | 0.00184674 | spSpec-51609-0292-546  | F7V   | 0.00188378 |
| spSpec-51994-0293-170  | F7V   | 0.00185451 | spSpec-51671-0299-088  | F9V   | 0.00188426 |
| spSpec-52056-0329-366  | B5I   | 0.00184511 | spSpec-51671-0299-443  | A1V   | 0.00187706 |
| spSpec-52056-0329-520  | G3V   | 0.00184810 | spSpec-51673-0313-499  | G4V   | 0.00187798 |
| spSpec-52282-0328-167  | F7III | 0.00185491 | spSpec-51691-0342-358  | F7V   | 0.00187585 |
| Object ID          | Type | Temperature | Distance | Magnitude |
|-------------------|------|-------------|----------|-----------|
| spSpec-52282-0328-216 | F7V  | 0.00185460  |          |           |
| spSpec-52375-0326-109 | F5III | 0.00185021  |          |           |
| spSpec-51663-0315-077 | A1V  | 0.00185579  |          |           |
| spSpec-51792-0354-581 | F6III | 0.00188034  |          |           |
| spSpec-51993-0334-512 | F0V  | 0.00188422  |          |           |
| spSpec-52000-0288-352 | F6V  | 0.00188389  |          |           |
| spSpec-52294-0327-164 | G3V  | 0.00188347  |          |           |
| spSpec-51615-0303-540 | F7V  | 0.00189472  |          |           |
| spSpec-51665-0311-409 | G4V  | 0.00188654  |          |           |
| spSpec-51671-0299-486 | F7V  | 0.00189321  |          |           |
| spSpec-51690-0341-201 | F9V  | 0.00188841  |          |           |
| spSpec-51692-0339-310 | A7V  | 0.00189405  |          |           |
| spSpec-51780-0351-440 | B8I  | 0.00188623  |          |           |
| spSpec-51900-0278-622 | F6III | 0.00189153  |          |           |
| spSpec-51908-0277-056 | A2V  | 0.00189080  |          |           |
| spSpec-51910-0269-398 | F7V  | 0.00188599  |          |           |
| spSpec-51910-0275-382 | F0IV | 0.00188583  |          |           |
| spSpec-51910-0275-397 | F0V  | 0.00188756  |          |           |
| spSpec-51943-0300-394 | A6V  | 0.00188799  |          |           |
| spSpec-51957-0273-456 | A3III | 0.00189244  |          |           |
| spSpec-51959-0283-617 | G2V  | 0.00188751  |          |           |
| spSpec-51985-0295-403 | F7V  | 0.00189140  |          |           |
| spSpec-51990-0289-294 | F0IV | 0.00189035  |          |           |
| spSpec-51997-0337-537 | F7V  | 0.00189406  |          |           |
| spSpec-51612-0280-068 | A2V  | 0.00190196  |          |           |
| spSpec-51658-0282-309 | G3V  | 0.00190154  |          |           |
| spSpec-51663-0307-468 | F7V  | 0.00190317  |          |           |
| spSpec-51689-0312-338 | B2III| 0.00190361  |          |           |
| Source ID               | Type    | Value  | Source ID               | Type    | Value  |
|------------------------|---------|--------|------------------------|---------|--------|
| spSpec-51910-0275-361  | A8III   | 0.00190141 | spSpec-51909-0276-576  | G3V     | 0.00193141 |
| spSpec-51941-0272-273  | G3V     | 0.00190386 | spSpec-51928-0291-355  | A9V     | 0.00192711 |
| spSpec-51941-0290-347  | F5V     | 0.00189965 | spSpec-51930-0285-352  | F3V     | 0.00193468 |
| spSpec-51941-0290-390  | G2V     | 0.00190275 | spSpec-51942-0301-422  | A8III   | 0.00193165 |
| spSpec-52023-0287-547  | F7V     | 0.00190033 | spSpec-51984-0279-120  | F0IV    | 0.00192884 |
| spSpec-52056-0329-410  | F7V     | 0.00189981 | spSpec-52017-0366-466  | G1V     | 0.00193056 |
| spSpec-52056-0329-603  | F6V     | 0.00190003 | spSpec-52023-0287-594  | F3V     | 0.00192549 |
| spSpec-51908-0277-626  | G2V     | 0.00190522 | spSpec-52368-0331-595  | A2I     | 0.00192553 |
| spSpec-51613-0305-358  | F5II    | 0.00193681 | spSpec-52000-0335-452  | A7V     | 0.00196954 |
| spSpec-51637-0306-295  | G3V     | 0.00193601 | spSpec-51658-0282-607  | G0V     | 0.00197609 |
| spSpec-51658-0282-272  | F0V     | 0.00194028 | spSpec-51663-0307-461  | G3V     | 0.00197511 |
| spSpec-51663-0315-489  | G3V     | 0.00194199 | spSpec-51671-0299-104  | A8III   | 0.00197694 |
| spSpec-51690-0341-162  | A8III   | 0.00193517 | spSpec-51690-0341-241  | F9V     | 0.00197719 |
| spSpec-51910-0275-465  | A3I     | 0.00194472 | spSpec-51694-0338-393  | G0V     | 0.00198402 |
| spSpec-51941-0290-284  | A6V     | 0.00194457 | spSpec-51818-0358-447  | B9III   | 0.00198111 |
| spSpec-51959-0283-153  | F3V     | 0.00193808 | spSpec-51883-0271-011  | G4V     | 0.00198053 |
| spSpec-51994-0309-375  | A8III   | 0.00193645 | spSpec-51909-0270-634  | F5III   | 0.00198179 |
| spSpec-52313-0333-193  | G4V     | 0.00193505 | spSpec-51941-0272-323  | G4V     | 0.00198193 |
| spSpec-51609-0292-061  | F7V     | 0.00195194 | spSpec-51941-0290-483  | A1V     | 0.00198172 |
| spSpec-51663-0307-618  | G6V     | 0.00194788 | spSpec-51943-0300-318  | F7V     | 0.00198427 |
| spSpec-51699-0349-564  | A3I     | 0.00195264 | spSpec-51959-0283-396  | F5III   | 0.00198022 |
| spSpec-51816-0360-225  | K0V     | 0.00195399 | spSpec-51994-0293-469  | F7V     | 0.00197511 |
| spSpec-51928-0291-210  | A9V     | 0.00195414 | spSpec-52000-0335-307  | F0III   | 0.00197736 |
| spSpec-51943-0300-308  | G3V     | 0.00194902 | spSpec-52367-0332-575  | F6V     | 0.00198295 |
| spSpec-51943-0300-367  | A1V     | 0.00195091 | spSpec-51663-0315-158  | G4V     | 0.00198580 |
| spSpec-51993-0334-491  | A8III   | 0.00194780 | spSpec-51671-0299-226  | A3III   | 0.00198908 |
| spSpec-52000-0288-074  | F7V     | 0.00195492 | spSpec-51671-0299-624  | F7V     | 0.00198652 |
| spSpec-52017-0366-016  | K0V     | 0.00195211 | spSpec-51816-0360-487  | G9III   | 0.00199312 |
| spSpec-52282-0328-183 | G3V | 0.00195343 |
| spSpec-51816-0360-617 | G4V | 0.00195852 |
| spSpec-51943-0284-471 | G3V | 0.00195953 |
| spSpec-51957-0304-079 | G0V | 0.00195705 |
| spSpec-51985-0295-401 | A8V | 0.00195906 |
| spSpec-51997-0337-326 | A8III | 0.00196064 |
| spSpec-51612-0280-394 | F4III | 0.00196875 |
| spSpec-51613-0305-350 | G3V | 0.00197207 |
| spSpec-51688-0302-446 | F7V | 0.00196784 |
| spSpec-51883-0271-031 | G4V | 0.00196518 |
| spSpec-51942-0301-245 | A9V | 0.00196870 |
| spSpec-51984-0279-351 | G3V | 0.00196665 |
| spSpec-51990-0340-300 | B8III | 0.00197384 |
| spSpec-51986-0294-206 | G2V | 0.00200182 |
| spSpec-51989-0363-030 | G4V | 0.00199989 |
| spSpec-51990-0310-310 | F7V | 0.00200296 |
| spSpec-52017-0366-024 | G3V | 0.00200026 |
| spSpec-52056-0329-482 | F9V | 0.00200175 |
| spSpec-52056-0329-572 | G3V | 0.00199870 |
| spSpec-51615-0303-341 | G4V | 0.00201333 |
| spSpec-51633-0268-293 | K0III | 0.00201048 |
| spSpec-51633-0268-302 | G3V | 0.00201323 |
| spSpec-51692-0339-375 | A9I | 0.00201333 |
| spSpec-51821-0359-380 | A8V | 0.00201083 |
| spSpec-51883-0271-320 | G3V | 0.00200182 |
| spSpec-51908-0277-208 | G3V | 0.00200627 |
| spSpec-51909-0270-350 | G2V | 0.00200515 |
| spSpec-51909-0276-309 | A6V | 0.00200911 |
| Object           | Spectral Type | Distance | Object           | Spectral Type | Distance |
|------------------|---------------|----------|------------------|---------------|----------|
| spSpec-51909-0276-372 | G2V           | 0.00201488 | spSpec-51662-0308-439 | G4V           | 0.00205393 |
| spSpec-51910-0275-496 | F5III         | 0.00200532 | spSpec-51703-0353-039 | G0III         | 0.00205332 |
| spSpec-51913-0274-061 | G3V           | 0.00201198 | spSpec-51818-0358-345 | G3V           | 0.00204919 |
| spSpec-51943-0284-327 | F7V           | 0.00200692 | spSpec-51909-0270-607 | G3V           | 0.00205452 |
| spSpec-51957-0273-381 | G3V           | 0.00200797 | spSpec-51990-0310-089 | G3V           | 0.00205347 |
| spSpec-52294-0327-254 | F7V           | 0.00201273 | spSpec-51990-0310-324 | G3V           | 0.00205006 |
| spSpec-51608-0267-325 | G3V           | 0.00201604 | spSpec-51990-0340-177 | G2V           | 0.00204739 |
| spSpec-51688-0302-191 | G3V           | 0.00202159 | spSpec-51997-0337-157 | G6V           | 0.00204501 |
| spSpec-51692-0339-200 | G9III         | 0.00202017 | spSpec-51999-0286-253 | F0III         | 0.00205069 |
| spSpec-51699-0349-585 | G7III         | 0.00202173 | spSpec-51608-0267-419 | B5I           | 0.00206417 |
| spSpec-51908-0277-521 | B4V           | 0.00202127 | spSpec-51633-0268-266 | G2V           | 0.00206112 |
| spSpec-51909-0276-452 | G4V           | 0.00202257 | spSpec-51689-0312-585 | G3V           | 0.00206463 |
| spSpec-51930-0285-356 | F7V           | 0.00201966 | spSpec-51691-0342-150 | G6V           | 0.00206329 |
| spSpec-52313-0333-639 | A8III         | 0.00201869 | spSpec-51703-0353-195 | F5V           | 0.00205963 |
| spSpec-51614-0281-263 | G3V           | 0.00202619 | spSpec-51943-0300-344 | F9V           | 0.00206301 |
| spSpec-51909-0270-161 | F5III         | 0.00203184 | spSpec-51984-0296-305 | G3V           | 0.00206263 |
| spSpec-51928-0291-224 | A7V           | 0.00202536 | spSpec-51989-0363-293 | G4V           | 0.00206083 |
| spSpec-51990-0289-401 | A9V           | 0.00203452 | spSpec-51990-0289-100 | F0V           | 0.00206070 |
| spSpec-51994-0309-475 | A9V           | 0.00206286 | spSpec-51792-0354-580 | A4I           | 0.00208874 |
| spSpec-51999-0286-299 | K0V           | 0.00205916 | spSpec-51821-0359-240 | A2V           | 0.00208544 |
| spSpec-52370-0330-195 | O9V           | 0.00206167 | spSpec-51909-0276-409 | A7V           | 0.00209084 |
| spSpec-51613-0305-275 | A2I           | 0.00207429 | spSpec-51985-0295-150 | G2V           | 0.00209186 |
| spSpec-51630-0266-234 | F9V           | 0.00206802 | spSpec-51990-0289-499 | G2V           | 0.00209317 |
| spSpec-51699-0349-321 | F0IV          | 0.00207122 | spSpec-51990-0310-382 | A8III         | 0.00208545 |
| spSpec-51816-0360-007 | F9V           | 0.00206549 | spSpec-51993-0334-089 | F7V           | 0.00209348 |
| spSpec-51883-0271-449 | F7V           | 0.00207429 | spSpec-51993-0334-462 | G3V           | 0.00209322 |
| spSpec-51913-0274-350 | G3V           | 0.00207162 | spSpec-51994-0293-081 | F5III         | 0.00208916 |
| spSpec-51997-0337-178 | A8III         | 0.00207265 | spSpec-51994-0309-471 | B4V           | 0.00208854 |
| spSpec-52000-0288-484 | F6V | 0.00206866 | spSpec-51997-0337-639 | F7V | 0.00208574 |
|----------------------|-----|------------|----------------------|-----|------------|
| spSpec-52368-0331-005 | G3V | 0.00207154 | spSpec-52000-0335-289 | F0III | 0.00208575 |
| spSpec-51663-0307-619 | F6V | 0.00207843 | spSpec-51690-0341-445 | F7V | 0.00210241 |
| spSpec-51665-0311-341 | G6V | 0.00207951 | spSpec-51818-0358-448 | F9V | 0.00209737 |
| spSpec-51691-0350-010 | G4V | 0.00207940 | spSpec-51910-0269-443 | G3V | 0.00210084 |
| spSpec-51703-0353-153 | F9V | 0.00207615 | spSpec-51942-0301-543 | F0IV | 0.00210420 |
| spSpec-51908-0277-141 | F0III | 0.00207804 | spSpec-51943-0284-134 | G2V | 0.00209551 |
| spSpec-51909-0270-468 | A7V | 0.00207527 | spSpec-51943-0300-042 | F4I | 0.00210188 |
| spSpec-51928-0291-496 | F5V | 0.00208058 | spSpec-51955-0298-193 | A9V | 0.00210089 |
| spSpec-51955-0298-394 | F5III | 0.00207906 | spSpec-51959-0297-448 | G4V | 0.00209910 |
| spSpec-51994-0293-174 | B7III | 0.00207574 | spSpec-51984-0296-537 | F3V | 0.00210325 |
| spSpec-51994-0309-624 | G3V | 0.00208138 | spSpec-51990-0289-521 | G2V | 0.00209973 |
| spSpec-52056-0329-426 | K4III | 0.00207943 | spSpec-51990-0340-488 | A3III | 0.00209509 |
| spSpec-52282-0328-357 | F7V | 0.00208024 | spSpec-52370-0330-556 | G3V | 0.00210298 |
| spSpec-52367-0332-060 | A6V | 0.00208261 | spSpec-51671-0299-471 | F5III | 0.00211489 |
| spSpec-52370-0330-640 | G9III | 0.00207510 | spSpec-51818-0358-469 | G2V | 0.00211461 |
| spSpec-51613-0305-046 | G3V | 0.00208661 | spSpec-51913-0274-064 | G3V | 0.00210588 |
| spSpec-51615-0303-558 | F5III | 0.00208945 | spSpec-51959-0283-181 | F9V | 0.00211353 |
| spSpec-51637-0306-367 | A8III | 0.00208914 | spSpec-51984-0296-134 | A7V | 0.00211230 |
| spSpec-51637-0306-493 | G3V | 0.00209180 | spSpec-51986-0294-293 | A7V | 0.00211154 |
| spSpec-51694-0338-171 | F5III | 0.00209202 | spSpec-51997-0337-299 | G3V | 0.00211227 |
| spSpec-51699-0349-089 | B7III | 0.00209404 | spSpec-52056-0329-030 | A6V | 0.00210902 |
| spSpec-51780-0351-144 | F7V | 0.00208565 | spSpec-51637-0306-587 | G2III | 0.00211891 |
| spSpec-51663-0315-431 | F7V | 0.00211521 | spSpec-51816-0360-384 | F9V | 0.00215244 |
| spSpec-51690-0341-248 | F5III | 0.00212203 | spSpec-51900-0278-076 | F5III | 0.00214635 |
| spSpec-51690-0341-259 | F9V | 0.00211520 | spSpec-51908-0277-513 | A7V | 0.00214558 |
| spSpec-51692-0339-493 | A1I | 0.00211813 | spSpec-51943-0300-524 | A3III | 0.00215382 |
| spSpec-51789-0352-218 | A8V | 0.00212472 | spSpec-51990-0289-364 | F6V | 0.00215121 |
| spSpec-51910-0275-074 | G3V | 0.00212495 | spSpec-52000-0335-141 | G3V | 0.00215438 |
| spSpec-51959-0283-126 | F9V | 0.00212217 | spSpec-51608-0267-230 | G3V | 0.00215999 |
| spSpec-51984-0279-139 | F5III | 0.00211803 | spSpec-51662-0308-051 | G3V | 0.00215612 |
| spSpec-51688-0302-630 | A7V | 0.00212583 | spSpec-51789-0352-045 | A1V | 0.00215905 |
| spSpec-51883-0271-109 | G3V | 0.00213277 | spSpec-51908-0277-313 | G3V | 0.00216130 |
| spSpec-51910-0269-321 | F7V | 0.00212772 | spSpec-51985-0295-492 | F7V | 0.00215935 |
| spSpec-51928-0291-110 | F7V | 0.00213245 | spSpec-51990-0310-143 | G2V | 0.00215835 |
| spSpec-51984-0279-572 | G3V | 0.00213105 | spSpec-51990-0340-339 | G2V | 0.00216181 |
| spSpec-51984-0296-625 | G3V | 0.00212677 | spSpec-52056-0329-104 | A7V | 0.00216124 |
| spSpec-51994-0293-552 | A8III | 0.00212837 | spSpec-51608-0267-427 | K0V | 0.00217400 |
| spSpec-51994-0309-342 | F0IV | 0.00212771 | spSpec-51663-0315-475 | G4V | 0.00217181 |
| spSpec-52282-0328-220 | F5II | 0.00212665 | spSpec-51665-0311-349 | A8III | 0.00216570 |
| spSpec-52313-0333-143 | G3V | 0.00212763 | spSpec-51690-0341-640 | F6III | 0.00216929 |
| spSpec-51608-0267-150 | G3V | 0.00214363 | spSpec-51692-0339-212 | G4V | 0.00217395 |
| spSpec-51703-0353-007 | B2III | 0.00214194 | spSpec-51699-0349-579 | F7V | 0.00217401 |
| spSpec-51792-0354-316 | F7V | 0.00213599 | spSpec-51909-0276-556 | A8V | 0.00217098 |
| spSpec-51821-0359-327 | F7V | 0.00213692 | spSpec-51910-0269-575 | G3V | 0.00217263 |
| spSpec-51909-0276-420 | G9III | 0.00213762 | spSpec-51913-0274-364 | F5V | 0.00216510 |
| spSpec-51913-0274-356 | G4V | 0.00213504 | spSpec-51986-0294-595 | A7V | 0.00217456 |
| spSpec-51942-0301-103 | G3V | 0.00214040 | spSpec-51994-0309-129 | F0IV | 0.00217328 |
| spSpec-51943-0284-410 | F5III | 0.00213572 | spSpec-51614-0281-317 | F7V | 0.00217771 |
| spSpec-51994-0293-499 | A1V | 0.00213616 | spSpec-51630-0266-056 | F7V | 0.00218465 |
| spSpec-52000-0288-425 | F9V | 0.00213596 | spSpec-51689-0312-418 | G3V | 0.00217567 |
| spSpec-52056-0329-447 | F7V | 0.00213842 | spSpec-51692-0343-230 | G3V | 0.00217883 |
| spSpec-51612-0280-071 | G3V | 0.00214551 | spSpec-51818-0358-021 | F9V | 0.00218249 |
| spSpec-51658-0282-541 | A1V | 0.00214784 | spSpec-51818-0358-500 | G7III | 0.00218089 |
| spSpec-51691-0342-489 | F7V | 0.00214562 | spSpec-51913-0274-164 | G3V | 0.00218216 |
| spSpec-51694-0338-259 | G3V | 0.00215047 | spSpec-51957-0273-106 | G3V | 0.00217902 |
| Object   | Type  | Value   | Object   | Type  | Value   |
|----------|-------|---------|----------|-------|---------|
| spSpec-51984-0279-532 | G3V   | 0.00218269 | spSpec-52313-0333-532 | G3V   | 0.00223120 |
| spSpec-51986-0294-342  | F5III | 0.00217899 | spSpec-51613-0305-328   | G6V   | 0.00223934 |
| spSpec-51989-0363-622  | G9III | 0.00218079 | spSpec-51663-0315-602   | F9V   | 0.00223950 |
| spSpec-52294-0327-530  | A8III | 0.00217671 | spSpec-51691-0350-319   | K0V   | 0.00223606 |
| spSpec-51658-0282-343  | F6V   | 0.00219186 | spSpec-51703-0353-468   | K0V   | 0.00224001 |
| spSpec-51658-0282-364  | B8III | 0.00218953 | spSpec-51959-0283-570   | A8V   | 0.00224384 |
| spSpec-51662-0308-447  | A7V   | 0.00219394 | spSpec-51900-0289-158   | G3V   | 0.00223580 |
| spSpec-51955-0298-008  | G3V   | 0.00219374 | spSpec-51990-0310-458   | F7V   | 0.00223986 |
| spSpec-52282-0328-149  | F7V   | 0.00218768 | spSpec-51994-0293-388   | G4V   | 0.00224227 |
| spSpec-51613-0305-323  | G2V   | 0.00220385 | spSpec-51994-0309-504   | F0IV  | 0.00223566 |
| spSpec-51614-0281-472  | G3V   | 0.00220414 | spSpec-52000-0288-340   | F0IV  | 0.00223503 |
| spSpec-51630-0266-197  | F0IV  | 0.00219634 | spSpec-52367-0332-501   | F7V   | 0.00223996 |
| spSpec-51943-0284-113  | F6V   | 0.00220030 | spSpec-51788-0355-578   | F5II  | 0.00224977 |
| spSpec-51986-0294-142  | F7V   | 0.00220211 | spSpec-51943-0284-312   | F0IV  | 0.00224882 |
| spSpec-52000-0335-124  | F7V   | 0.00220205 | spSpec-51957-0273-350   | F0IV  | 0.00225463 |
| spSpec-51788-0355-406  | G1V   | 0.00220801 | spSpec-51999-0286-254   | B1III | 0.00225491 |
| spSpec-51913-0274-491  | G3V   | 0.00220901 | spSpec-51614-0281-558   | F4III | 0.00226150 |
| spSpec-51984-0296-087  | G2V   | 0.00220915 | spSpec-51691-0350-407   | F0IV  | 0.00226148 |
| spSpec-51990-0289-080  | G3V   | 0.00220648 | spSpec-51909-0270-346   | G9III | 0.00225883 |
| spSpec-51609-0292-334  | F9V   | 0.00222481 | spSpec-51957-0273-091   | F0IV  | 0.00225826 |
| spSpec-51613-0305-314  | G1V   | 0.00222996 | spSpec-51994-0309-233   | A2V   | 0.00226055 |
| spSpec-51821-0359-021  | F0IV  | 0.00221773 | spSpec-52000-0309-435   | A3V   | 0.00225905 |
| spSpec-51943-0284-440  | A7V   | 0.00222049 | spSpec-52294-0327-220   | F7V   | 0.00226312 |
| spSpec-51990-0289-449  | F7V   | 0.00222266 | spSpec-51637-0306-483   | A2V   | 0.00226541 |
| spSpec-52000-0335-121  | A8III | 0.00222350 | spSpec-51780-0351-119   | G6V   | 0.00226584 |
| spSpec-51662-0308-345  | A2V   | 0.00223412 | spSpec-51788-0355-610   | G4V   | 0.00226611 |
| spSpec-51671-0299-335  | A1V   | 0.00222728 | spSpec-51928-0291-221   | A8V   | 0.00227257 |
| spSpec-51690-0341-033  | A8III | 0.0022851  | spSpec-51994-0309-371   | F7V   | 0.00227353 |
| spSpec-51699-0349-441 | G8III | 0.00222946 | spSpec-52017-0366-359 | F0V | 0.00227358 |
|----------------------|-------|------------|----------------------|-----|------------|
| spSpec-51780-0351-026 | G2III | 0.00223083 | spSpec-52367-0332-183 | F7V | 0.00227378 |
| spSpec-51930-0285-357 | F7V   | 0.00223492 | spSpec-51609-0292-485 | A6V | 0.00227904 |
| spSpec-51999-0286-148 | G2V   | 0.00222529 | spSpec-51688-0302-221 | F5II | 0.00227880 |
| spSpec-52294-0327-322 | G3V   | 0.00223317 | spSpec-51692-0339-304 | A6V | 0.00227623 |
| spSpec-51821-0359-160 | G2V   | 0.00227871 | spSpec-51692-0339-331 | A7V | 0.00231365 |
| spSpec-51821-0359-325 | F0V   | 0.00227541 | spSpec-51984-0279-402 | F7V | 0.00230556 |
| spSpec-51910-0269-412 | A8V   | 0.00228022 | spSpec-52370-0330-002 | G3V | 0.00230758 |
| spSpec-51910-0269-422 | F9V   | 0.00228071 | spSpec-51614-0281-431 | B7III | 0.00232102 |
| spSpec-52367-0332-111 | A2V   | 0.00228363 | spSpec-51614-0281-460 | A9V | 0.00232425 |
| spSpec-51663-0315-291 | G6III | 0.00229306 | spSpec-51663-0315-178 | K0V | 0.00232102 |
| spSpec-51665-0311-140 | G2V   | 0.00229018 | spSpec-51673-0313-564 | F5III | 0.00231505 |
| spSpec-51703-0353-618 | G9III | 0.00229294 | spSpec-51780-0351-124 | K4V | 0.00231646 |
| spSpec-51818-0358-277 | G4V   | 0.00228972 | spSpec-51990-0289-508 | G3V | 0.00232489 |
| spSpec-51821-0359-273 | B3I   | 0.00229309 | spSpec-51994-0293-589 | F0IV | 0.00232403 |
| spSpec-51883-0271-078 | F0III | 0.00228843 | spSpec-52023-0287-598 | F5III | 0.00231727 |
| spSpec-51883-0271-574 | G3V   | 0.00229376 | spSpec-52370-0330-163 | G3V | 0.00232162 |
| spSpec-51908-0277-274 | F7V   | 0.00228662 | spSpec-52370-0330-231 | F7V | 0.00232090 |
| spSpec-51941-0272-554 | G2V   | 0.00228609 | spSpec-51662-0308-375 | A6V | 0.00233221 |
| spSpec-51957-0273-340 | G3V   | 0.00228543 | spSpec-51673-0313-622 | B2II | 0.00232611 |
| spSpec-51959-0297-464 | F5II  | 0.00228760 | spSpec-51699-0349-437 | G6III | 0.00233107 |
| spSpec-51990-0289-489 | A1V   | 0.00228508 | spSpec-51788-0355-064 | F7V | 0.00232609 |
| spSpec-51990-0340-343 | F6V   | 0.00228733 | spSpec-51792-0354-525 | F9V | 0.00232696 |
| spSpec-51990-0340-358 | F6V   | 0.00229279 | spSpec-51990-0340-026 | F7V | 0.00232751 |
| spSpec-51993-0334-490 | G2V   | 0.00228961 | spSpec-51993-0334-582 | F6V | 0.00232571 |
| spSpec-52000-0288-284 | A9V   | 0.00228753 | spSpec-51673-0313-452 | G3V | 0.00233671 |
| spSpec-51637-0306-405 | A9V   | 0.00229781 | spSpec-51691-0342-278 | F0IV | 0.00233782 |
| spSpec-51883-0271-487 | G4V   | 0.00230302 | spSpec-51792-0354-486 | A2I | 0.00233552 |
| Spec-Number          | Type   | Value  | Spec-Number          | Type   | Value  |
|---------------------|--------|--------|---------------------|--------|--------|
| spSpec-51909-0270-322| G3V    | 0.00230218 | spSpec-51900-0278-005 | F5V    | 0.00234286 |
| spSpec-51909-0270-355| G6III | 0.00230338 | spSpec-51900-0278-330 | B7III  | 0.00234056 |
| spSpec-51930-0285-607| G3V    | 0.00229752 | spSpec-51959-0283-475 | A8V    | 0.00233608 |
| spSpec-51943-0284-332| F5III  | 0.00230280 | spSpec-51990-0310-313 | F5III  | 0.00233572 |
| spSpec-51943-0300-214| A3III  | 0.00229759 | spSpec-52017-0366-065 | A7V    | 0.00233967 |
| spSpec-51984-0279-312| G4V    | 0.00229765 | spSpec-52056-0329-542 | A8V    | 0.00234328 |
| spSpec-51615-0303-124| A3I    | 0.00231192 | spSpec-52367-0332-538 | F7V    | 0.00233949 |
| spSpec-51633-0268-298| F5V    | 0.00231443 | spSpec-51633-0268-066 | F8III  | 0.00234871 |
| spSpec-51633-0268-335| F7V    | 0.00231305 | spSpec-51673-0313-282 | G4V    | 0.00234982 |
| spSpec-51658-0282-270| F7V    | 0.00231146 | spSpec-51703-0353-158 | G2III  | 0.00234627 |
| spSpec-51789-0352-264| F7V    | 0.00235128 | spSpec-51990-0310-495 | G4V    | 0.00237750 |
| spSpec-52294-0327-540| A1V    | 0.00234760 | spSpec-52023-0287-292 | F5III  | 0.00237824 |
| spSpec-52313-0333-512| G3V    | 0.00235194 | spSpec-52294-0327-526 | A3III  | 0.00238378 |
| spSpec-51692-0339-301| F9V    | 0.00236491 | spSpec-52313-0333-077 | A7V    | 0.00237782 |
| spSpec-51780-0351-300| F3I    | 0.00235900 | spSpec-51671-0299-615 | F5III  | 0.00239281 |
| spSpec-51908-0277-076| G2V    | 0.00235705 | spSpec-51690-0341-271 | K0III  | 0.00238690 |
| spSpec-51909-0276-228| A6V    | 0.00236423 | spSpec-51694-0338-607 | F5II   | 0.00238823 |
| spSpec-51984-0279-296| G3V    | 0.00236363 | spSpec-51900-0278-609 | G3V    | 0.00239033 |
| spSpec-51984-0296-502| F5II   | 0.00235632 | spSpec-51913-0274-236 | G4V    | 0.00239443 |
| spSpec-51985-0295-389| F7V    | 0.00235804 | spSpec-51930-0285-125 | A3III  | 0.00238778 |
| spSpec-51986-0294-492| G3V    | 0.00236366 | spSpec-51957-0304-390 | F9V    | 0.00239256 |
| spSpec-51989-0363-319| G4V    | 0.00235883 | spSpec-52017-0366-231 | K0I    | 0.00238924 |
| spSpec-51994-0309-191| G4V    | 0.00236373 | spSpec-52368-0331-507 | G7V    | 0.00238876 |
| spSpec-52000-0288-636| F7V    | 0.00236137 | spSpec-51703-0353-586 | A1V    | 0.00240350 |
| spSpec-52017-0366-078| G5IV   | 0.00235832 | spSpec-51942-0301-064 | G3V    | 0.00239686 |
| spSpec-52056-0329-304| F7V    | 0.00235777 | spSpec-51957-0304-346 | G4V    | 0.00240041 |
| spSpec-52368-0331-557| F4I    | 0.00235987 | spSpec-51957-0304-546 | F9V    | 0.00239849 |
| spSpec-51613-0305-488| B9III  | 0.00237085 | spSpec-51993-0334-433 | F3V    | 0.00240225 |
| Object       | Type   | Magnitude   | Object       | Type   | Magnitude   |
|--------------|--------|-------------|--------------|--------|-------------|
| spSpec-51614-0281-139 | G5III | 0.00237465  | spSpec-51609-0292-592 | F5V | 0.00241401  |
| spSpec-51673-0313-550 | B0V | 0.00237383  | spSpec-51633-0268-338 | F7V | 0.00241482  |
| spSpec-51789-0352-279 | F0IV | 0.00236871  | spSpec-51688-0302-337 | F0III | 0.00240628 |
| spSpec-51959-0283-202 | F8III | 0.00236732  | spSpec-51928-0291-374 | K0V | 0.00241101  |
| spSpec-51985-0295-396 | G6V | 0.00237384  | spSpec-51959-0297-122 | G6V | 0.00241133  |
| spSpec-51997-0337-576 | A8III | 0.00237500  | spSpec-51989-0363-433 | G1V | 0.00240807  |
| spSpec-52000-0288-390 | G2V | 0.00236582  | spSpec-51990-0310-591 | G4V | 0.00240591  |
| spSpec-51614-0281-483 | G3V | 0.00238410  | spSpec-51997-0337-592 | G2V | 0.00241019  |
| spSpec-51690-0341-598 | G3V | 0.00237543  | spSpec-52017-0366-151 | B1III | 0.00241392 |
| spSpec-51699-0349-520 | A7V | 0.00237973  | spSpec-52023-0287-049 | G3V | 0.00241216  |
| spSpec-51703-0353-391 | A6V | 0.00237776  | spSpec-52370-0330-378 | A2I | 0.00240971  |
| spSpec-51910-0275-395 | G4V | 0.00237725  | spSpec-52375-0326-035 | F8V | 0.00240744  |
| spSpec-51941-0272-089 | F7V | 0.00237926  | spSpec-51614-0281-142 | A8III | 0.00241701 |
| spSpec-51941-0290-099 | A8III | 0.00238147  | spSpec-51658-0282-221 | G0V | 0.00242409  |
| spSpec-51984-0279-149 | F0IV | 0.00238434  | spSpec-51663-0307-633 | G3V | 0.00241907  |
| spSpec-51671-0299-353 | F0V | 0.00241812  | spSpec-51994-0293-414 | A6V | 0.00245979  |
| spSpec-51689-0312-040 | G5IV | 0.00241839  | spSpec-52000-0335-538 | A9V | 0.00246005  |
| spSpec-51909-0276-535 | G0V | 0.00241560  | spSpec-52023-0287-209 | K4V | 0.00245935  |
| spSpec-51941-0290-174 | A8V | 0.00242088  | spSpec-51614-0281-572 | F0IV | 0.00246905 |
| spSpec-51943-0300-571 | A8V | 0.00242111  | spSpec-51691-0350-317 | F9V | 0.00247305  |
| spSpec-52375-0326-609 | F7V | 0.00242413  | spSpec-51699-0349-139 | G9V | 0.00247349  |
| spSpec-51614-0281-171 | G3V | 0.00242937  | spSpec-51910-0269-203 | G6III | 0.00246571 |
| spSpec-51630-0266-031 | A3III | 0.00242740  | spSpec-51941-0272-042 | G4V | 0.00246564  |
| spSpec-51662-0308-359 | G3V | 0.00243310  | spSpec-51941-0290-507 | F7V | 0.00246837  |
| spSpec-51688-0302-411 | F7V | 0.00242984  | spSpec-51943-0284-378 | F0IV | 0.00246994 |
| spSpec-51691-0350-413 | F9V | 0.00242932  | spSpec-51957-0273-001 | F5II | 0.00247394 |
| spSpec-51792-0354-427 | A3III | 0.00243469  | spSpec-51957-0304-328 | G2V | 0.00246935  |
| spSpec-52000-0288-488 | A8III | 0.00243017  | spSpec-51994-0309-236 | A6V | 0.00246748  |
| Spectra ID          | Spectral Type | Temperature | Distance |
|---------------------|---------------|-------------|----------|
| spSpec-52282-0328-487 | A2I           |             | 0.00242640 |
| spSpec-51614-0281-243 | A8V           |             | 0.00244476 |
| spSpec-51633-0268-314 | G2V           |             | 0.00243834 |
| spSpec-51671-0299-388 | G4V           |             | 0.00243550 |
| spSpec-51688-0302-323 | F7V           |             | 0.00244178 |
| spSpec-51941-0290-233 | F9V           |             | 0.00243859 |
| spSpec-51957-0273-542 | F0IV          |             | 0.00244630 |
| spSpec-51990-0310-149 | K0V           |             | 0.00244109 |
| spSpec-51990-0310-301 | F7V           |             | 0.00243965 |
| spSpec-51994-0293-455 | F7V           |             | 0.00244279 |
| spSpec-51637-0306-452 | F9V           |             | 0.00244965 |
| spSpec-51663-0307-260 | A8III         |             | 0.00244815 |
| spSpec-51816-0360-044 | A3III         |             | 0.00244989 |
| spSpec-51821-0359-264 | K4V           |             | 0.00245117 |
| spSpec-51910-0275-110 | F5III         |             | 0.00245166 |
| spSpec-51663-0315-512 | G3V           |             | 0.00245566 |
| spSpec-51818-0358-538 | A7V           |             | 0.00245944 |
| spSpec-51883-0271-083 | F7V           |             | 0.00246231 |
| spSpec-51943-0300-606 | F5III         |             | 0.00246299 |
| spSpec-51989-0363-113 | G6V           |             | 0.00246150 |
| spSpec-51662-0308-361 | F0IV          |             | 0.00248997 |
| spSpec-51662-0308-552 | G4V           |             | 0.00249000 |
| spSpec-51663-0315-411 | G3V           |             | 0.00249490 |
| spSpec-51665-0311-312 | F5III         |             | 0.00249008 |
| spSpec-51688-0302-360 | F9V           |             | 0.00248660 |
| spSpec-51690-0341-180 | F6III         |             | 0.00249038 |
| spSpec-51690-0341-360 | F5III         |             | 0.00249190 |
| spSpec-51942-0301-110 | A9V           |             | 0.00249234 |
| Object Number       | Type   | Value  | Object Number       | Type   | Value  |
|---------------------|--------|--------|---------------------|--------|--------|
| spSpec-51942-0301-488 | A8III  | 0.00249436 | spSpec-52375-0326-073 | F8III  | 0.00252312 |
| spSpec-52368-0331-628 | F7V    | 0.00249492 | spSpec-51608-0267-049 | G2V    | 0.00252734 |
| spSpec-52375-0326-567 | F7V    | 0.00249025 | spSpec-51658-0282-267 | F5III  | 0.00252542 |
| spSpec-52375-0326-631 | F5II   | 0.00248583 | spSpec-51658-0282-432 | G2V    | 0.00252647 |
| spSpec-51633-0268-360 | F9V    | 0.00249945 | spSpec-51913-0274-536 | A6V    | 0.00253394 |
| spSpec-51637-0306-161 | F5III  | 0.00249859 | spSpec-51942-0301-593 | B7III  | 0.00252667 |
| spSpec-51691-0342-461 | G3V    | 0.00249940 | spSpec-51943-0284-492 | G3V    | 0.00252535 |
| spSpec-51942-0301-456 | A3III  | 0.00250495 | spSpec-51957-0273-607 | F5III  | 0.00252656 |
| spSpec-51989-0363-351 | F7V    | 0.00250470 | spSpec-51990-0340-307 | G3V    | 0.00253274 |
| spSpec-52282-0328-369 | A8III  | 0.00250339 | spSpec-51990-0340-589 | A8III  | 0.00252711 |
| spSpec-52368-0331-021 | F6V    | 0.00249807 | spSpec-51609-0292-518 | A3III  | 0.00253819 |
| spSpec-51658-0282-361 | G6V    | 0.00251285 | spSpec-51663-0315-251 | G0III  | 0.00253582 |
| spSpec-51658-0282-393 | F9V    | 0.00251089 | spSpec-51671-0299-269 | F0V    | 0.00254354 |
| spSpec-51662-0308-149 | A6III  | 0.00251494 | spSpec-51699-0349-570 | G0III  | 0.00253756 |
| spSpec-51662-0308-500 | F7V    | 0.00251362 | spSpec-51821-0359-351 | A7V    | 0.00253609 |
| spSpec-51663-0307-556 | A6V    | 0.00251397 | spSpec-51910-0269-316 | G4V    | 0.00254382 |
| spSpec-51691-0342-036 | G3V    | 0.00251169 | spSpec-51990-0310-393 | B7I    | 0.00254126 |
| spSpec-51691-0342-542 | G9III  | 0.00250918 | spSpec-51637-0306-505 | K4V    | 0.00254951 |
| spSpec-51959-0283-237 | A8V    | 0.00251386 | spSpec-51691-0350-632 | F0IV   | 0.00254913 |
| spSpec-51959-0297-360 | A9V    | 0.00250725 | spSpec-51694-0338-095 | F7V    | 0.00255159 |
| spSpec-51990-0340-379 | F7V    | 0.00251103 | spSpec-51792-0354-169 | A1V    | 0.00255405 |
| spSpec-52000-0335-293 | F8V    | 0.00250561 | spSpec-51955-0298-215 | G4V    | 0.00254503 |
| spSpec-52056-0329-164 | G3V    | 0.00250706 | spSpec-51692-0339-165 | A3I    | 0.00256105 |
| spSpec-52294-0327-178 | A8III  | 0.00250911 | spSpec-51990-0289-052 | A8V    | 0.00256274 |
| spSpec-51609-0292-400 | A6V    | 0.00251517 | spSpec-51994-0293-035 | F0III  | 0.00255579 |
| spSpec-51613-0305-381 | F8III  | 0.00257279 | spSpec-51959-0297-546 | A9V    | 0.00260616 |
| spSpec-51900-0278-367 | A6V    | 0.00257407 | spSpec-51985-0295-002 | G6V    | 0.00261069 |
| spSpec-51957-0304-603 | F5II   | 0.00257221 | spSpec-51990-0289-534 | A6V    | 0.00260799 |
| Object ID          | Type   | Distance   | Object ID          | Type   | Distance   |
|-------------------|--------|------------|-------------------|--------|------------|
| spSpec-51990-0289-253 | F5III  | 0.00257006 | spSpec-51990-0310-170 | A8III  | 0.00261313 |
| spSpec-51999-0336-204   | K0V    | 0.00256878 | spSpec-51990-0310-341 | B9III  | 0.00261405 |
| spSpec-52313-0333-294   | F9V    | 0.00257088 | spSpec-51994-0309-581 | B9III  | 0.00260836 |
| spSpec-52368-0331-225   | F9V    | 0.00257496 | spSpec-52017-0366-087 | G6III  | 0.00260862 |
| spSpec-52375-0326-148   | G3V    | 0.00256842 | spSpec-52368-0331-530 | B4V    | 0.00261261 |
| spSpec-51662-0308-503   | A7I    | 0.00258414 | spSpec-51612-0280-203 | G3V    | 0.00262200 |
| spSpec-51821-0359-055   | B2III  | 0.00258440 | spSpec-51943-0300-386 | A2I    | 0.00262321 |
| spSpec-51957-0304-482   | F0IV   | 0.00258133 | spSpec-51959-0283-307 | F7V    | 0.00262115 |
| spSpec-51985-0295-098   | F7V    | 0.00257944 | spSpec-51997-0337-630 | G6V    | 0.00262201 |
| spSpec-52000-0335-327   | G4V    | 0.00257590 | spSpec-52375-0326-555 | A8V    | 0.00262365 |
| spSpec-51662-0308-479   | F5III  | 0.00258772 | spSpec-51792-0354-250 | A8III  | 0.00262585 |
| spSpec-51691-0342-037   | K5V    | 0.00259285 | spSpec-51816-0360-342 | F6V    | 0.00262545 |
| spSpec-51816-0360-287   | G2IV   | 0.00258696 | spSpec-51908-0277-258 | A3III  | 0.00263337 |
| spSpec-51909-0276-460   | G3V    | 0.00259166 | spSpec-51908-0277-288 | A9V    | 0.00263227 |
| spSpec-51943-0300-171   | A8III  | 0.00259216 | spSpec-51909-0276-593 | A7V    | 0.00263131 |
| spSpec-51957-0304-071   | F0IV   | 0.00259093 | spSpec-51990-0310-509 | G4V    | 0.00263298 |
| spSpec-52000-0288-189   | B7III  | 0.00259238 | spSpec-52368-0331-353 | F7V    | 0.00263484 |
| spSpec-52023-0287-296   | F5II   | 0.00258604 | spSpec-51665-0311-260 | G3V    | 0.00264185 |
| spSpec-52375-0326-508   | A7V    | 0.00258553 | spSpec-51671-0299-180 | F5II   | 0.00263864 |
| spSpec-52375-0326-552   | F7V    | 0.00258551 | spSpec-51692-0339-336 | G5III  | 0.00263530 |
| spSpec-51909-0276-307   | F5II   | 0.00260475 | spSpec-51694-0338-127 | G6V    | 0.00264312 |
| spSpec-51913-0274-047   | G3V    | 0.00260298 | spSpec-51792-0354-124 | A6V    | 0.00264089 |
| spSpec-51930-0285-288   | F7V    | 0.00260448 | spSpec-51910-0269-547 | G3V    | 0.00264294 |
| spSpec-51943-0300-511   | G3V    | 0.00260038 | spSpec-51910-0275-230 | A6V    | 0.00264110 |
| spSpec-52313-0333-331   | K0V    | 0.00260283 | spSpec-51930-0285-479 | K0V    | 0.00264298 |
| spSpec-51788-0355-169   | G8II   | 0.00260567 | spSpec-51943-0284-263 | A9V    | 0.00263533 |
| spSpec-51821-0359-548   | F7V    | 0.00261449 | spSpec-51984-0279-577 | G7V    | 0.00263965 |
| spSpec-51910-0275-079   | F7V    | 0.00261017 | spSpec-51989-0363-350 | A3III  | 0.00263881 |
| Spectrum Name          | Type  | Number  | Type  | Number  | Type  | Number  | Type  |
|-----------------------|-------|---------|-------|---------|-------|---------|-------|
| spSpec-51941-0272-532 | F6III | 0.00261291 | spSpec-51658-0282-550 | F5II | 0.00265047 |
| spSpec-51943-0300-452 | A4I   | 0.00260835 | spSpec-51665-0311-288 | G4V | 0.00264877 |
| spSpec-51816-0360-100 | G9II  | 0.00265346 | spSpec-51994-0293-197 | G3V | 0.00268817 |
| spSpec-51913-0274-282 | F7V   | 0.00265426 | spSpec-52313-0333-130 | F5III | 0.00269140 |
| spSpec-51941-0290-268 | F5III | 0.00264845 | spSpec-51689-0312-595 | G5IV | 0.00269752 |
| spSpec-51986-0294-499 | G3V   | 0.00265428 | spSpec-51818-0358-640 | A1V | 0.00270164 |
| spSpec-51993-0334-558 | F6V   | 0.00264514 | spSpec-51908-0277-316 | G3V | 0.0026901 |
| spSpec-51689-0312-118 | A7V   | 0.00265690 | spSpec-51957-0273-053 | F6V | 0.00269658 |
| spSpec-51780-0351-385 | A1V   | 0.00266464 | spSpec-52000-0335-623 | G3V | 0.00269849 |
| spSpec-51788-0355-536 | F8III | 0.00266239 | spSpec-51613-0305-396 | F6V | 0.00271007 |
| spSpec-51913-0274-284 | A8III | 0.00265567 | spSpec-51614-0281-121 | G4V | 0.00271472 |
| spSpec-51959-0297-319 | G2IV  | 0.00265996 | spSpec-51663-0307-052 | A3III | 0.00271275 |
| spSpec-51984-0279-367 | G3V   | 0.00266282 | spSpec-51694-0338-561 | A6V | 0.00270910 |
| spSpec-51986-0294-351 | G4V   | 0.00265533 | spSpec-51699-0349-105 | K4V | 0.00271300 |
| spSpec-51994-0293-560 | F9V   | 0.00266077 | spSpec-51699-0349-383 | G9III | 0.00271378 |
| spSpec-51994-0309-152 | F0IV  | 0.00266419 | spSpec-51816-0360-546 | G4V | 0.00270577 |
| spSpec-52367-0332-038 | F6V   | 0.00266457 | spSpec-51943-0300-464 | F7V | 0.00271047 |
| spSpec-52370-0330-379 | F5III | 0.00265823 | spSpec-51990-0289-070 | G2V | 0.00270798 |
| spSpec-51615-0303-561 | A7V   | 0.00267442 | spSpec-51997-0337-129 | K5I | 0.00271351 |
| spSpec-51910-0269-349 | F8V   | 0.00266660 | spSpec-51614-0281-410 | F0IV | 0.00271998 |
| spSpec-51930-0285-335 | F9V   | 0.00267219 | spSpec-51692-0343-359 | A6V | 0.00271592 |
| spSpec-51990-0289-300 | A3III | 0.00267484 | spSpec-51909-0276-275 | F5II | 0.00271579 |
| spSpec-52017-0366-139 | A1V   | 0.00266997 | spSpec-51990-0289-187 | G1V | 0.00272491 |
| spSpec-51612-0280-352 | G7V   | 0.00268135 | spSpec-52367-0332-447 | A8V | 0.00271970 |
| spSpec-51665-0311-472 | G9III | 0.00267988 | spSpec-52368-0331-303 | G5IV | 0.00271821 |
| spSpec-51688-0302-443 | F7V   | 0.00267513 | spSpec-51613-0305-261 | F5II | 0.00273000 |
| spSpec-51788-0355-036 | F9V   | 0.00268430 | spSpec-51688-0302-338 | F5V | 0.00273483 |
| spSpec-51913-0274-422 | G4V   | 0.00267774 | spSpec-51942-0301-060 | G3V | 0.00273127 |
| object_id          | class | flux         | object_id          | class | flux         |
|--------------------|-------|-------------|--------------------|-------|-------------|
| spSpec-51989-0363-143 | G4V   | 0.00267927  | spSpec-51959-0297-420 | F0V   | 0.00273435  |
| spSpec-52294-0327-588 | F8V   | 0.00267633  | spSpec-52017-0366-318 | G3V   | 0.00273398  |
| spSpec-51614-0281-002 | F9V   | 0.00268545  | spSpec-51612-0280-280 | G3V   | 0.00274146  |
| spSpec-51630-0266-390 | G4V   | 0.00269025  | spSpec-51671-0299-623 | G1V   | 0.00274430  |
| spSpec-51691-0342-398 | F9V   | 0.00268902  | spSpec-51673-0313-592 | G3V   | 0.00274057  |
| spSpec-51990-0289-606 | F0V   | 0.00268936  | spSpec-51941-0290-261 | G3V   | 0.00273544  |
| spSpec-51993-0334-470 | A7V   | 0.00269480  | spSpec-51957-0273-344 | G3V   | 0.00274306  |
| spSpec-51957-0273-411 | F8I   | 0.00273545  | spSpec-52023-0287-383 | G6V   | 0.00278710  |
| spSpec-51957-0304-239 | A1V   | 0.00273695  | spSpec-52368-0331-632 | A1II  | 0.00278553  |
| spSpec-51994-0309-488 | G4V   | 0.00273827  | spSpec-51614-0281-163 | G3V   | 0.00279787  |
| spSpec-52000-0288-446 | A6V   | 0.00274362  | spSpec-51658-0282-613 | A7V   | 0.00279613  |
| spSpec-51613-0305-188 | G3V   | 0.00275303  | spSpec-51955-0298-637 | F9V   | 0.00279624  |
| spSpec-51630-0266-395 | B8V   | 0.00275060  | spSpec-51989-0363-321 | A1II  | 0.00279664  |
| spSpec-51688-0302-474 | A9I   | 0.00274853  | spSpec-52000-0335-097 | G3V   | 0.00279840  |
| spSpec-51691-0350-362 | A7V   | 0.00274926  | spSpec-52294-0327-601 | F8I   | 0.00279664  |
| spSpec-51692-0339-629 | A7V   | 0.00274541  | spSpec-51609-0292-284 | F0IV  | 0.00280677  |
| spSpec-51994-0309-443 | K0III | 0.00274963  | spSpec-51658-0282-025 | F7V   | 0.00280754  |
| spSpec-51663-0315-276 | G4V   | 0.00275517  | spSpec-51663-0307-053 | A7I   | 0.00280707  |
| spSpec-51694-0338-282 | G2V   | 0.00276456  | spSpec-51984-0279-573 | G3V   | 0.00281181  |
| spSpec-51910-0275-035 | G4V   | 0.00275833  | spSpec-52000-0335-001 | B7III | 0.00280559  |
| spSpec-51957-0304-073 | F5II  | 0.00275754  | spSpec-52370-0330-528 | F8III | 0.00280548  |
| spSpec-51986-0294-637 | A1I   | 0.00276436  | spSpec-51658-0282-282 | K2III | 0.00281755  |
| spSpec-52023-0287-240 | F0III | 0.00276433  | spSpec-51816-0360-280 | G0V   | 0.00282466  |
| spSpec-51662-0308-457 | G3V   | 0.00276688  | spSpec-51909-0270-489 | F9V   | 0.00282098  |
| spSpec-51665-0311-138 | F5II  | 0.00276802  | spSpec-51994-0293-166 | A3III | 0.00281829  |
| spSpec-51688-0302-549 | A8III | 0.00276943  | spSpec-51614-0281-106 | A8III | 0.00283326  |
| spSpec-51957-0304-200 | G3V   | 0.00276797  | spSpec-51699-0349-128 | K2III | 0.00282596  |
| spSpec-51608-0267-479 | A2I   | 0.00277635  | spSpec-51780-0351-060 | G8II  | 0.00282502  |
| spSpec-51691-0342-155 | A6V | 0.00278493 | spSpec-51816-0360-034 | G1V | 0.00283146 |
|----------------------|-----|------------|----------------------|-----|------------|
| spSpec-51691-0342-382 | B7III | 0.00277610 | spSpec-51928-0291-236 | G7V | 0.00283143 |
| spSpec-51957-0273-283 | G2V | 0.00278142 | spSpec-51959-0297-281 | A7V | 0.00283414 |
| spSpec-51984-0296-396 | A8III | 0.00278492 | spSpec-51990-0289-055 | A8III | 0.00283201 |
| spSpec-52023-0287-322 | F5III | 0.00277720 | spSpec-51694-0338-196 | G9III | 0.00284233 |
| spSpec-52313-0333-372 | B8III | 0.00278275 | spSpec-51816-0360-346 | K0I | 0.00284114 |
| spSpec-51630-0266-026 | A7V | 0.00278746 | spSpec-51900-0278-319 | G4V | 0.00284265 |
| spSpec-51788-0355-596 | F5III | 0.00279034 | spSpec-51990-0310-377 | A8III | 0.00284455 |
| spSpec-51818-0358-522 | F7V | 0.00279059 | spSpec-52000-0288-109 | F0IV | 0.00284024 |
| spSpec-51955-0298-068 | G4V | 0.00279239 | spSpec-51613-0305-272 | F7V | 0.00284577 |
| spSpec-51959-0297-632 | F9V | 0.00278527 | spSpec-51630-0266-497 | G4V | 0.00285167 |
| spSpec-51994-0293-606 | A7V | 0.00279345 | spSpec-51671-0299-617 | F8V | 0.00284606 |
| spSpec-51690-0341-435 | A8III | 0.00285029 | spSpec-51780-0351-016 | K4V | 0.00289723 |
| spSpec-51942-0301-250 | A2V | 0.00284737 | spSpec-51816-0360-514 | F7V | 0.00289903 |
| spSpec-51986-0294-218 | G4V | 0.00285201 | spSpec-51959-0283-436 | A3III | 0.00289627 |
| spSpec-51612-0280-043 | A1V | 0.00286090 | spSpec-51986-0294-568 | G0III | 0.00289904 |
| spSpec-51633-0268-325 | G4III | 0.00285724 | spSpec-52375-0326-484 | B7III | 0.00289901 |
| spSpec-51671-0299-303 | A1V | 0.00285985 | spSpec-51658-0282-582 | A3III | 0.00290752 |
| spSpec-51694-0338-558 | A3III | 0.00285757 | spSpec-51691-0350-542 | G8III | 0.00290832 |
| spSpec-51694-0338-592 | G3V | 0.00286401 | spSpec-51792-0354-417 | G6V | 0.00290999 |
| spSpec-51909-0270-359 | G9III | 0.00286037 | spSpec-51957-0304-175 | F0IV | 0.00291151 |
| spSpec-51928-0291-388 | F5III | 0.00286333 | spSpec-51957-0304-601 | A9V | 0.00291356 |
| spSpec-51941-0272-019 | G4V | 0.00286500 | spSpec-51990-0340-349 | A8V | 0.00290741 |
| spSpec-52368-0331-348 | G3V | 0.00286429 | spSpec-51615-0303-360 | G3V | 0.00291576 |
| spSpec-51612-0280-063 | A6V | 0.00286570 | spSpec-51941-0290-332 | F9V | 0.00292370 |
| spSpec-51673-0313-478 | G0III | 0.00287277 | spSpec-51671-0299-348 | A7V | 0.00293407 |
| spSpec-51692-0339-327 | B1III | 0.00287045 | spSpec-51691-0342-587 | A8III | 0.00293142 |
| spSpec-51883-0271-055 | A8III | 0.00286635 | spSpec-51997-0337-195 | A8III | 0.00292711 |
| Spectrum ID       | Type | Flux Value   | Spectrum ID       | Type | Flux Value   |
|------------------|------|-------------|------------------|------|-------------|
| spSpec-51900-0278-394 | G4V  | 0.00286796  | spSpec-52282-0328-394 | G9III | 0.00293057  |
| spSpec-51955-0298-383   | F7V  | 0.00286804  | spSpec-51699-0349-218 | G4V  | 0.00293512  |
| spSpec-51699-0349-116   | F9V  | 0.00288281  | spSpec-51909-0270-174 | G3V  | 0.00293982  |
| spSpec-51788-0355-607   | F9V  | 0.00287859  | spSpec-51909-0270-358 | G5IV | 0.00293617  |
| spSpec-51928-0291-310   | F7V  | 0.00287731  | spSpec-51955-0298-144 | A1V  | 0.00294338  |
| spSpec-52000-0335-275   | B2III| 0.00288471  | spSpec-51959-0283-562 | F7V  | 0.00294012  |
| spSpec-51612-0280-591   | K4V  | 0.00289111  | spSpec-51984-0279-419 | F7V  | 0.00294317  |
| spSpec-51818-0358-455   | K4V  | 0.00289358  | spSpec-52282-0328-224 | G3V  | 0.00294013  |
| spSpec-51883-0271-579   | B5I  | 0.00288555  | spSpec-51671-0299-086 | A6V  | 0.00295750  |
| spSpec-51957-0304-615   | K0I  | 0.00289074  | spSpec-51910-0275-121 | G3V  | 0.00296479  |
| spSpec-51984-0296-487   | F5III| 0.00289387  | spSpec-51989-0363-364 | A8III| 0.00295718  |
| spSpec-51985-0295-291   | G4V  | 0.00289262  | spSpec-51990-0340-611 | F9V  | 0.00295768  |
| spSpec-51630-0266-559   | G3V  | 0.00289871  | spSpec-51999-0286-414 | F9V  | 0.00295629  |
| spSpec-51692-0339-459   | A2I  | 0.00289687  | spSpec-52313-0333-542 | G4V  | 0.00295571  |
| spSpec-51703-0353-107   | K0III| 0.00290058  | spSpec-52368-0331-615 | A8III| 0.00296178  |
| spSpec-51703-0353-280   | F0V  | 0.00290266  | spSpec-52375-0326-089 | A3III| 0.00295750  |
| spSpec-51703-0353-414   | G7V  | 0.00289951  | spSpec-51999-0336-242 | G0III| 0.00297028  |
| spSpec-52000-0335-369   | B2III| 0.00296717  | spSpec-51910-0269-121 | G9III| 0.00302843  |
| spSpec-52375-0326-289   | G3V  | 0.00296520  | spSpec-51941-0290-232 | A6V  | 0.00303421  |
| spSpec-51694-0338-237   | F8V  | 0.00298266  | spSpec-51957-0273-369 | F7V  | 0.00303465  |
| spSpec-51908-0277-188   | G0III| 0.00297901  | spSpec-51957-0304-429 | F6V  | 0.00302952  |
| spSpec-51909-0270-595   | A9V  | 0.00297802  | spSpec-52023-0287-289 | F8III| 0.00302988  |
| spSpec-51942-0301-212   | F7V  | 0.00297521  | spSpec-51671-0299-305 | B0.5I| 0.00304332  |
| spSpec-51959-0297-255   | G2III| 0.00298276  | spSpec-51942-0301-063 | A3III| 0.00303874  |
| spSpec-51984-0296-566   | G4V  | 0.00297946  | spSpec-51943-0300-413 | A3III| 0.00304248  |
| spSpec-51994-0309-229   | F6V  | 0.00298130  | spSpec-51957-0304-558 | F7V  | 0.00303603  |
| spSpec-51608-0267-602   | F7V  | 0.00299096  | spSpec-51609-0292-301 | F9V  | 0.00305434  |
| spSpec-51941-0272-180   | F0I  | 0.00298865  | spSpec-51900-0278-335 | G3V  | 0.00305335  |
| Name                  | Type  | Mass         | Name                  | Type  | Mass         |
|-----------------------|-------|--------------|-----------------------|-------|--------------|
| spSpec-52282-0328-478 | A8III | 0.00299350   | spSpec-51909-0270-073 | F6V   | 0.00305276   |
| spSpec-51658-0282-033 | F6V   | 0.00300141   | spSpec-51943-0284-497 | G4V   | 0.00305429   |
| spSpec-51690-0341-544 | F5III | 0.00299835   | spSpec-52000-0288-403 | A9V   | 0.00305175   |
| spSpec-51959-0283-117 | A2V   | 0.00300119   | spSpec-51662-0308-462 | F7V   | 0.00305919   |
| spSpec-51986-0294-446 | F7V   | 0.00300241   | spSpec-51986-0294-559 | K4V   | 0.00305650   |
| spSpec-51615-0303-319 | G3V   | 0.00300835   | spSpec-51990-0310-291 | A4I   | 0.00306065   |
| spSpec-51942-0301-359 | F0IV  | 0.00300919   | spSpec-52368-0331-375 | G3V   | 0.00306393   |
| spSpec-51943-0300-350 | A6V   | 0.00301318   | spSpec-51671-0299-479 | A2I   | 0.00306758   |
| spSpec-51955-0298-024 | A7V   | 0.00300605   | spSpec-51692-0339-321 | F5III | 0.00306512   |
| spSpec-51955-0298-247 | G3V   | 0.00300798   | spSpec-51909-0276-212 | G4V   | 0.00306800   |
| spSpec-51986-0294-513 | A7V   | 0.00301109   | spSpec-52000-0288-347 | F9V   | 0.00307412   |
| spSpec-52313-0333-059 | A7V   | 0.00301413   | spSpec-52017-0366-166 | G8II  | 0.00307408   |
| spSpec-52367-0332-366 | A7I   | 0.00300667   | spSpec-51608-0267-311 | F7V   | 0.00308017   |
| spSpec-51615-0303-466 | A8V   | 0.00301718   | spSpec-51789-0352-106 | F7V   | 0.00308466   |
| spSpec-51788-0355-373 | G3V   | 0.00301686   | spSpec-51994-0293-211 | A7V   | 0.00308130   |
| spSpec-51910-0269-313 | G3I   | 0.00302347   | spSpec-51615-0303-057 | F2I   | 0.00308986   |
| spSpec-51930-0285-258 | K4V   | 0.00301682   | spSpec-51816-0360-268 | B5I   | 0.00308659   |
| spSpec-51994-0309-427 | F7V   | 0.00301843   | spSpec-51957-0273-485 | G3V   | 0.00309496   |
| spSpec-51658-0282-059 | G4V   | 0.00303498   | spSpec-51989-0363-353 | G3V   | 0.00309151   |
| spSpec-51665-0311-283 | F9V   | 0.00303430   | spSpec-51990-0289-059 | A6V   | 0.00309117   |
| spSpec-51671-0299-476 | A8V   | 0.00302751   | spSpec-51994-0293-574 | F5II  | 0.00308883   |
| spSpec-51818-0358-342 | G3V   | 0.00302641   | spSpec-51608-0267-293 | G1V   | 0.00310150   |
| spSpec-51883-0271-014 | G5IV  | 0.00310273   | spSpec-51930-0285-092 | A8III | 0.00315075   |
| spSpec-51994-0309-457 | A7V   | 0.00309589   | spSpec-51941-0272-122 | K0V   | 0.00314809   |
| spSpec-52000-0335-361 | B7III | 0.00310285   | spSpec-51943-0300-510 | A8III | 0.00315128   |
| spSpec-51609-0292-497 | G4V   | 0.00311150   | spSpec-51959-0297-283 | G3V   | 0.00315249   |
| spSpec-51941-0290-492 | G3V   | 0.00310945   | spSpec-51630-0266-275 | O6.5V | 0.00315850   |
| spSpec-51942-0301-394 | A3III | 0.00311159   | spSpec-51663-0307-247 | A8III | 0.00316233   |
| SpSpec-51957-0304-553 | F7V | 0.00310571 | SpSpec-51789-0352-493 | F9V | 0.00315835 |
|----------------------|-----|------------|-----------------------|-----|------------|
| SpSpec-51630-0266-015 | A6V | 0.00311606 | SpSpec-51959-0283-603 | A7V | 0.00315735 |
| SpSpec-51630-0266-038 | F8V | 0.00311599 | SpSpec-51993-0334-414 | F8V | 0.00316422 |
| SpSpec-51671-0299-539 | F7V | 0.00312204 | SpSpec-51999-0286-331 | F6V | 0.00316467 |
| SpSpec-51673-0313-446 | A2I | 0.00311983 | SpSpec-51630-0266-627 | A7V | 0.00316751 |
| SpSpec-51788-0355-135 | A6V | 0.00312134 | SpSpec-51658-0282-391 | A1V | 0.00316975 |
| SpSpec-51942-0301-151 | F0III | 0.00312224 | SpSpec-51688-0302-059 | G4V | 0.00316853 |
| SpSpec-51943-0284-506 | G4V | 0.00311983 | SpSpec-51788-0355-442 | F7V | 0.00317099 |
| SpSpec-51658-0282-346 | F9V | 0.00312969 | SpSpec-51959-0297-004 | A3III | 0.00316933 |
| SpSpec-51688-0302-088 | F7V | 0.00312862 | SpSpec-51984-0279-233 | G3V | 0.00317415 |
| SpSpec-51699-0349-053 | F9V | 0.00312994 | SpSpec-52000-0335-247 | F3I | 0.00317132 |
| SpSpec-51792-0354-388 | G0III | 0.00312971 | SpSpec-52294-0327-386 | F5II | 0.00317040 |
| SpSpec-51955-0298-195 | F9V | 0.00313236 | SpSpec-52367-0332-193 | A8V | 0.00316542 |
| SpSpec-51957-0304-613 | K4V | 0.00313217 | SpSpec-51694-0338-327 | F5III | 0.00317940 |
| SpSpec-51989-0363-431 | G3V | 0.00313306 | SpSpec-51942-0301-045 | F4I | 0.00318458 |
| SpSpec-51637-0306-228 | G4V | 0.00313718 | SpSpec-51942-0301-563 | A8III | 0.00318134 |
| SpSpec-51665-0311-298 | F9V | 0.00314283 | SpSpec-51990-0340-348 | G3V | 0.00317588 |
| SpSpec-51691-0350-569 | F9V | 0.00313796 | SpSpec-52023-0287-546 | F8V | 0.00317819 |
| SpSpec-51692-0339-451 | F6V | 0.00314429 | SpSpec-51788-0355-274 | G2III | 0.00318947 |
| SpSpec-51816-0360-446 | A1V | 0.00313744 | SpSpec-51941-0272-220 | G3V | 0.00319164 |
| SpSpec-51990-0310-083 | B2III | 0.00313742 | SpSpec-51780-0351-309 | K3III | 0.00319767 |
| SpSpec-51990-0340-271 | A2I | 0.00314390 | SpSpec-51821-0359-075 | K4V | 0.00320325 |
| SpSpec-52056-0329-587 | F5III | 0.00313628 | SpSpec-51908-0277-459 | A1V | 0.00319918 |
| SpSpec-52368-0331-155 | K4V | 0.00313919 | SpSpec-52017-0366-261 | A8V | 0.00319797 |
| SpSpec-51662-0308-416 | A7I | 0.00315463 | SpSpec-52368-0331-259 | F5III | 0.00319814 |
| SpSpec-51792-0354-349 | G2IV | 0.00315199 | SpSpec-51609-0292-578 | F0IV | 0.00320509 |
| SpSpec-51909-0276-158 | F0IV | 0.00314655 | SpSpec-51990-0289-382 | B2III | 0.00321216 |
| SpSpec-52000-0288-325 | F7V | 0.00321251 | SpSpec-52370-0330-511 | F5II | 0.00326224 |
| Object ID          | Type | Distance (pc) | Object ID          | Type | Distance (pc) |
|-------------------|------|---------------|-------------------|------|---------------|
| spSpec-51608-0267-308 | G4V  | 0.00321749    | spSpec-51615-0303-061 | F9V  | 0.00327138    |
| spSpec-51612-0280-153  | F9V  | 0.00322424    | spSpec-51658-0282-577  | A6V  | 0.00327038    |
| spSpec-51673-0313-413  | K0III| 0.00322079    | spSpec-51909-0276-033  | G6V  | 0.00326584    |
| spSpec-51821-0359-004  | F9V  | 0.00321862    | spSpec-51957-0304-202  | G4V  | 0.00326767    |
| spSpec-51955-0298-319  | A2V  | 0.00321906    | spSpec-52375-0326-003  | F9V  | 0.00327282    |
| spSpec-51984-0296-062  | F9V  | 0.00321660    | spSpec-51691-0350-301  | B2III| 0.00327580    |
| spSpec-52370-0330-343  | F5III| 0.00322277    | spSpec-51699-0349-552  | B7III| 0.00327712    |
| spSpec-51609-0292-052  | A6V  | 0.00323480    | spSpec-51788-0355-136  | K4V  | 0.00328404    |
| spSpec-51792-0354-401  | F7V  | 0.00322827    | spSpec-51789-0352-004  | G2IV | 0.00327860    |
| spSpec-51942-0301-191  | B9III| 0.00323235    | spSpec-51990-0340-477  | A1V  | 0.00328026    |
| spSpec-51957-0273-157  | A8V  | 0.00322989    | spSpec-51999-0336-012  | F5III| 0.00327764    |
| spSpec-51989-0363-493  | A7V  | 0.00322501    | spSpec-52017-0366-033  | F5II | 0.00328265    |
| spSpec-51994-0293-593  | B7III| 0.00322705    | spSpec-51663-0315-488  | K0I  | 0.00328779    |
| spSpec-52056-0329-415  | K5I  | 0.00323023    | spSpec-51990-0340-404  | A9V  | 0.00328812    |
| spSpec-52367-0332-306  | A1V  | 0.00322628    | spSpec-51612-0280-608  | G3V  | 0.00329566    |
| spSpec-52375-0326-447  | A3III| 0.00322971    | spSpec-51689-0312-299  | K0V  | 0.00330312    |
| spSpec-51613-0305-493  | F5II | 0.00323591    | spSpec-51690-0341-369  | A7V  | 0.00330128    |
| spSpec-51789-0352-542  | F0IV | 0.00324315    | spSpec-51699-0349-254  | F5II | 0.00330443    |
| spSpec-51941-0290-139  | F9V  | 0.00323564    | spSpec-51942-0301-330  | A2I  | 0.00330329    |
| spSpec-51957-0304-338  | A3V  | 0.00324215    | spSpec-51990-0340-159  | A9V  | 0.00329731    |
| spSpec-52000-0335-128  | F9V  | 0.00324467    | spSpec-51993-0334-375  | F5III| 0.00329647    |
| spSpec-51609-0292-115  | G9III| 0.00325308    | spSpec-51999-0336-195  | A3III| 0.00329644    |
| spSpec-51703-0353-034  | K4V  | 0.00325396    | spSpec-52000-0335-276  | A8III| 0.00330486    |
| spSpec-51943-0300-458  | G4V  | 0.00324700    | spSpec-52023-0287-253  | B7III| 0.00329589    |
| spSpec-51993-0334-278  | G3V  | 0.00325194    | spSpec-51633-0268-104  | G2III| 0.00330768    |
| spSpec-52000-0335-146  | G4V  | 0.00324886    | spSpec-51957-0273-424  | F5III| 0.00331194    |
| spSpec-52370-0330-152  | G9III| 0.00325393    | spSpec-52282-0328-289  | B1III| 0.00330772    |
| spSpec-51658-0282-324  | A3III| 0.00325510    | spSpec-51900-0278-307  | G2IV | 0.00331644    |
| Object     | Type | Distance   |
|------------|------|------------|
| spSpec-51663-0307-113 | G2V  | 0.00325665 |
| spSpec-51941-0272-086   | F6V  | 0.00325888 |
| spSpec-51990-0289-063   | F4I  | 0.00326412 |
| spSpec-52313-0333-568   | G2V  | 0.00325638 |
| spSpec-51999-0336-228   | F0IV | 0.0033238 |
| spSpec-51663-0307-262   | A4I  | 0.00332732 |
| spSpec-51990-0310-397   | F9V  | 0.00333133 |
| spSpec-51999-0286-093   | A9V  | 0.00332832 |
| spSpec-52294-0327-295   | A7V  | 0.00332579 |
| spSpec-51608-0267-322   | K0V  | 0.00334406 |
| spSpec-51671-0299-531   | A2V  | 0.00334123 |
| spSpec-51690-0341-020   | A2V  | 0.00333875 |
| spSpec-51780-0351-477   | K0III| 0.00333516 |
| spSpec-51792-0354-229   | A1V  | 0.00334382 |
| spSpec-51883-0271-599   | F5III| 0.00334468 |
| spSpec-51957-0304-201   | G6III| 0.00334388 |
| spSpec-51989-0363-264   | M1V  | 0.00333934 |
| spSpec-51990-0340-099   | F5III| 0.00333761 |
| spSpec-52313-0333-636   | A3III| 0.00333669 |
| spSpec-52375-0326-047   | A2V  | 0.00334223 |
| spSpec-51630-0266-539   | G9III| 0.00335067 |
| spSpec-51673-0313-208   | G2IV | 0.00335242 |
| spSpec-51789-0352-103   | G4V  | 0.00334681 |
| spSpec-51789-0352-358   | A9V  | 0.00334538 |
| spSpec-51792-0354-481   | A1II | 0.00334618 |
| spSpec-51942-0301-145   | A8V  | 0.00334864 |
| spSpec-51942-0301-529   | B4V  | 0.00335287 |
| spSpec-51692-0339-009   | A8III| 0.00336477 |
| spSpec-51780-0351-372 | A7V | 0.00335756 |
| spSpec-51941-0272-187 | G3V | 0.00335583 |
| spSpec-51957-0273-596 | A9V | 0.00336298 |
| spSpec-51990-0310-455 | G3V | 0.00335637 |
| spSpec-51999-0286-161 | A2I | 0.00336300 |
| spSpec-51692-0339-617 | B5I | 0.00337400 |
| spSpec-51818-0358-603 | F7V | 0.00337069 |
| spSpec-51994-0293-385 | A8V | 0.00337310 |
| spSpec-52000-0288-015 | A6V | 0.00337123 |
| spSpec-51908-0277-302 | F8V | 0.00343976 |
| spSpec-51984-0296-515 | A8V | 0.00343683 |
| spSpec-52023-0287-388 | G3V | 0.00344466 |
| spSpec-51614-0281-085 | F7V | 0.00345457 |
| spSpec-51788-0355-626 | A8V | 0.00345423 |
| spSpec-51941-0272-075 | G4V | 0.00345467 |
| spSpec-52023-0287-120 | G3V | 0.00344987 |
| spSpec-51662-0308-506 | F5II | 0.00345869 |
| spSpec-51694-0338-267 | F5II | 0.00346429 |
| spSpec-51780-0351-199 | A8III | 0.00346480 |
| spSpec-51780-0351-628 | G6III | 0.00346020 |
| spSpec-51941-0272-572 | F9V | 0.00347105 |
| spSpec-51943-0300-317 | G2III | 0.00347289 |
| spSpec-51984-0279-495 | G3V | 0.00347368 |
| spSpec-51688-0302-424 | A3V | 0.00348087 |
| spSpec-51690-0341-108 | G8II | 0.00348247 |
| spSpec-51816-0360-638 | F7V | 0.00348181 |
| spSpec-51909-0276-599 | F5III | 0.00348148 |
| spSpec-51608-0267-251 | G2V | 0.00349059 |
| spSpec-51658-0282-337 | F0IV  | 0.00349458 | spSpec-52294-0327-298 | G3V  | 0.00354510 |
|------------------------|-------|------------|----------------------|------|------------|
| spSpec-51699-0349-417  | A7I   | 0.00348609 | spSpec-51609-0292-637 | F7V  | 0.00356481 |
| spSpec-51942-0301-154  | A8III | 0.00348730 | spSpec-51691-0350-373 | F5II | 0.00355807 |
| spSpec-51699-0349-572  | K4V   | 0.00350076 | spSpec-51816-0360-119 | G9III| 0.00355751 |
| spSpec-51788-0355-568  | K4III | 0.00349758 | spSpec-51990-0310-626 | G3V  | 0.00355878 |
| spSpec-51883-0271-181  | A6V   | 0.00350362 | spSpec-51608-0267-605 | F0IV | 0.00357495 |
| spSpec-51990-0340-058  | B2III | 0.00350487 | spSpec-51658-0282-111 | A3III| 0.00356558 |
| spSpec-51658-0282-405  | A8III | 0.00350619 | spSpec-51993-0334-624 | A2V  | 0.00357363 |
| spSpec-51688-0302-315  | F7V   | 0.00351268 | spSpec-52375-0326-161 | A1V  | 0.00357346 |
| spSpec-51692-0339-217  | G8II  | 0.00350943 | spSpec-51662-0308-019 | B5I  | 0.00358384 |
| spSpec-51942-0301-496  | A7V   | 0.00351315 | spSpec-51957-0273-027 | A6V  | 0.00358110 |
| spSpec-51943-0300-308  | F5III | 0.00350624 | spSpec-51957-0304-552 | G3V  | 0.00358204 |
| spSpec-52368-0331-245  | A8III | 0.00351283 | spSpec-51990-0289-176 | G0III| 0.00358025 |
| spSpec-51908-0277-025  | A2V   | 0.00352093 | spSpec-51658-0282-204 | G4V  | 0.00359103 |
| spSpec-51990-0310-278  | K4V   | 0.00359303 | spSpec-52294-0327-456 | B7III| 0.00367899 |
| spSpec-51993-0334-569  | A2V   | 0.00359376 | spSpec-51673-0313-369 | B5I  | 0.00368594 |
| spSpec-51994-0293-369  | F7V   | 0.00359212 | spSpec-52000-0288-344 | F6V  | 0.00368972 |
| spSpec-51780-0351-020  | F5III | 0.00359618 | spSpec-52017-0366-264 | A7V  | 0.00369417 |
| spSpec-51816-0360-497  | G0I   | 0.00359867 | spSpec-51613-0305-273 | G1V  | 0.00369850 |
| spSpec-51818-0358-346  | B7III | 0.00359869 | spSpec-51663-0315-062 | B4V  | 0.00370356 |
| spSpec-51883-0271-557  | F4I   | 0.00359584 | spSpec-51673-0313-090 | G8III| 0.00369679 |
| spSpec-51908-0277-066  | A2V   | 0.00359580 | spSpec-51957-0304-384 | F9V  | 0.00369695 |
| spSpec-51997-0337-640  | F8III | 0.00359583 | spSpec-51984-0296-463 | A3III| 0.00370367 |
| spSpec-51957-0304-585  | G0III | 0.00360638 | spSpec-51994-0293-041 | F5III| 0.00370207 |
| spSpec-51990-0340-571  | A3III | 0.00361224 | spSpec-52368-0331-566 | F5III| 0.00369776 |
| spSpec-51633-0268-046  | G5IV  | 0.00362156 | spSpec-51688-0302-320 | A8III| 0.00370964 |
| spSpec-51986-0294-146  | G3V   | 0.00361815 | spSpec-51984-0296-157 | F9V  | 0.00371448 |
| spSpec-51990-0340-193  | F5II  | 0.00362030 | spSpec-51613-0305-276 | G2IV | 0.00372306 |
| Source                  | Type | Distance | Type | Distance |
|------------------------|------|----------|------|----------|
| spSpec-51692-0343-303  | A3V  | 0.00362823 | spSpec-51703-0353-281 | F5II | 0.00372097 |
| spSpec-51942-0301-358  | A6V  | 0.00362730 | spSpec-51993-0334-409 | G2V  | 0.00371755 |
| spSpec-51908-0277-535  | G2V  | 0.00363593 | spSpec-52294-0327-495 | F7V  | 0.00372200 |
| spSpec-51910-0269-211  | G4III| 0.00364076 | spSpec-51699-0349-032 | K3III| 0.00373422 |
| spSpec-51990-0340-260  | A8III| 0.00364293 | spSpec-51788-0355-592 | A3III| 0.00373112 |
| spSpec-52370-0330-335  | G3V  | 0.00364244 | spSpec-51909-0276-259 | F5III| 0.00373308 |
| spSpec-52375-0326-540  | K4V  | 0.00363695 | spSpec-51959-0297-316 | K4V  | 0.00373222 |
| spSpec-51613-0305-294  | G4V  | 0.00365295 | spSpec-51615-0303-352 | G3V  | 0.00373902 |
| spSpec-51662-0308-330  | G8II | 0.00364942 | spSpec-51942-0301-324 | A7V  | 0.00374482 |
| spSpec-51662-0308-575  | G1V  | 0.00365797 | spSpec-52017-0366-300 | K4III| 0.00373609 |
| spSpec-51699-0349-030  | A7V  | 0.00365553 | spSpec-51699-0349-446 | K4V  | 0.00374727 |
| spSpec-51957-0304-196  | K4V  | 0.00366045 | spSpec-51941-0272-557 | G6V  | 0.00374667 |
| spSpec-52056-0329-578  | B8I  | 0.00367045 | spSpec-51941-0290-024 | A3I  | 0.00374870 |
| spSpec-52367-0332-377  | A8III| 0.00367356 | spSpec-51986-0294-214 | F5II | 0.00374819 |
| spSpec-52368-0331-624  | F8V  | 0.00367368 | spSpec-51994-0309-265 | F0IV | 0.00375422 |
| spSpec-51692-0339-373  | F5III| 0.00368369 | spSpec-52056-0329-556 | F8V  | 0.00374912 |
| spSpec-51957-0273-200  | A8III| 0.00367539 | spSpec-52294-0327-535 | A7V  | 0.00376143 |
| spSpec-51994-0293-628  | A8V  | 0.00367508 | spSpec-51615-0303-342 | G4V  | 0.00376741 |
| spSpec-51997-0337-088  | A8V  | 0.00368009 | spSpec-51699-0349-449 | A8III| 0.00377120 |
| spSpec-52000-0288-485  | A8III| 0.00377054 | spSpec-51690-0341-278 | A6V  | 0.00386370 |
| spSpec-51792-0354-163  | B7III| 0.00378483 | spSpec-51816-0360-329 | K0V  | 0.00386055 |
| spSpec-51909-0276-115  | G3V  | 0.00378109 | spSpec-51959-0297-088 | G0III| 0.00385557 |
| spSpec-51990-0310-229  | A6V  | 0.00378441 | spSpec-51789-0352-298 | K4V  | 0.00386662 |
| spSpec-51999-0286-556  | F5II | 0.00377938 | spSpec-51990-0310-150 | F7V  | 0.00386958 |
| spSpec-51673-0313-188  | K4V  | 0.00379351 | spSpec-52367-0332-291 | F5III| 0.00387452 |
| spSpec-51689-0312-584  | A8III| 0.00378720 | spSpec-51928-0291-089 | G3V  | 0.00389313 |
| spSpec-51908-0277-596  | A7V  | 0.00379286 | spSpec-51942-0301-088 | F0IV | 0.00388702 |
| spSpec-51910-0275-111  | F3I  | 0.00379351 | spSpec-51637-0306-263 | A7I  | 0.00389926 |
| Object             | Type | Value 1 | Object             | Type | Value 2  |
|--------------------|------|---------|--------------------|------|----------|
| spSpec-51990-0289-109 | A2V  | 0.00378818 | spSpec-51609-0292-561 | G6V  | 0.00391064 |
| spSpec-512370-0330-138 | A8V  | 0.00379029 | spSpec-51690-0341-266 | A0I  | 0.00391364 |
| spSpec-51662-0308-322 | A8V  | 0.00379858 | spSpec-51908-0277-256 | A9V  | 0.00390952 |
| spSpec-51780-0351-215 | G3V  | 0.00379874 | spSpec-51928-0291-360 | G8II | 0.00391133 |
| spSpec-51789-0352-087 | A2V  | 0.00380033 | spSpec-51993-0334-100 | G2V  | 0.00391110 |
| spSpec-51909-0270-309 | A9V  | 0.00381110 | spSpec-51818-0358-109 | A6V  | 0.00391839 |
| spSpec-51910-0269-353 | G2V  | 0.00381174 | spSpec-51883-0271-442 | A7V  | 0.00391522 |
| spSpec-51984-0279-438 | A6V  | 0.00381037 | spSpec-51630-0266-629 | A2V  | 0.00393334 |
| spSpec-51994-0293-048 | F7V  | 0.00380840 | spSpec-51792-0354-114 | F5II | 0.00393311 |
| spSpec-52282-0328-285 | F7V  | 0.00381488 | spSpec-51941-0272-211 | G4V  | 0.00392560 |
| spSpec-51608-0267-217 | F9V  | 0.00381817 | spSpec-51984-0279-533 | K4V  | 0.00393040 |
| spSpec-51908-0277-183 | A8III | 0.00381504 | spSpec-52017-0366-029 | O9V  | 0.00392584 |
| spSpec-51955-0298-520 | A8V  | 0.00381775 | spSpec-51658-0282-433 | A8III | 0.00393984 |
| spSpec-51957-0273-348 | G4III | 0.00382360 | spSpec-51665-0311-241 | G8III | 0.00394431 |
| spSpec-51699-0349-334 | G2III | 0.00383423 | spSpec-52023-0287-384 | F5III | 0.00393939 |
| spSpec-51997-0337-632 | F8III | 0.00383239 | spSpec-51662-0308-335 | A3III | 0.00394778 |
| spSpec-51942-0301-617 | F0IV  | 0.00383794 | spSpec-51789-0352-462 | B7III | 0.00395230 |
| spSpec-51630-0266-021 | B7I   | 0.00384620 | spSpec-51792-0354-282 | K4V  | 0.00394620 |
| spSpec-51673-0313-448 | G3V  | 0.00385171 | spSpec-51909-0276-205 | K2III | 0.00395136 |
| spSpec-51792-0354-449 | G5III | 0.00385263 | spSpec-51942-0301-497 | A9V  | 0.00394912 |
| spSpec-51985-0295-491 | A7I   | 0.00384706 | spSpec-52368-0331-621 | F9V  | 0.00394687 |
| spSpec-52000-0288-120 | F7V  | 0.00385139 | spSpec-51613-0305-512 | B7III | 0.00396175 |
| spSpec-52000-0288-412 | A7V  | 0.00385055 | spSpec-51816-0360-528 | K4V  | 0.00396466 |
| spSpec-52370-0330-140 | A8V  | 0.00384979 | spSpec-52056-0329-201 | B1II | 0.00396394 |
| spSpec-51608-0267-075 | F7V  | 0.00396545 | spSpec-52000-0288-063 | B5I  | 0.00405854 |
| spSpec-51614-0281-361 | G6V  | 0.00397272 | spSpec-51990-0289-525 | K4V  | 0.00406693 |
| spSpec-51913-0274-626 | G5III | 0.00397681 | spSpec-51689-0312-586 | A6V  | 0.00408407 |
| spSpec-51959-0283-314 | F9V  | 0.00397527 | spSpec-51908-0277-011 | G3V  | 0.00407980 |
| Spectrum Number       | Type   | Heliocentric Distance |
|----------------------|--------|-----------------------|
| spSpec-52294-0327-054 | F5II   | 0.00398044            |
| spSpec-52294-0327-311 | G3V    | 0.00398328            |
| spSpec-51910-0269-209 | G8II   | 0.00399350            |
| spSpec-51941-0290-488 | A8III  | 0.00399329            |
| spSpec-51957-0273-238 | G6V    | 0.00399033            |
| spSpec-51994-0309-291 | K5I    | 0.00399055            |
| spSpec-51703-0353-484 | K3III  | 0.00400364            |
| spSpec-51909-0270-580 | G2III  | 0.00399708            |
| spSpec-52000-0288-542 | F5II   | 0.00399814            |
| spSpec-51637-0306-560 | F5III  | 0.00400955            |
| spSpec-51692-0339-181 | B7I    | 0.00400688            |
| spSpec-51990-0289-028 | A2I    | 0.00401187            |
| spSpec-51999-0286-294 | G2V    | 0.00400509            |
| spSpec-51690-0341-249 | G6VII  | 0.00402100            |
| spSpec-51930-0285-325 | K4V    | 0.00401710            |
| spSpec-51703-0353-601 | F5III  | 0.00403339            |
| spSpec-51957-0304-063 | A8III  | 0.00403383            |
| spSpec-51613-0305-299 | M1V    | 0.00403636            |
| spSpec-51630-0266-513 | F0IV   | 0.00403546            |
| spSpec-51637-0306-196 | A6V    | 0.00403516            |
| spSpec-51789-0352-439 | G6III  | 0.00403982            |
| spSpec-51942-0301-548 | G6III  | 0.00404476            |
| spSpec-51959-0283-442 | G2III  | 0.00403788            |
| spSpec-51789-0352-587 | B1I    | 0.00405425            |
| spSpec-51943-0300-440 | A8III  | 0.00405273            |
| spSpec-51613-0305-270 | A7I    | 0.00405928            |
| spSpec-51673-0313-064 | F7V    | 0.00405578            |
| spSpec-51941-0290-053 | G0III  | 0.00406447            |

The table lists some astronomical data for various stars, including their spectrum number, type, and heliocentric distance.
| Object ID       | Type  | Name     | Magnitude |
|-----------------|-------|----------|-----------|
| spSpec-51993-0334-625 | A3III | 0.00405960 |           |
| spSpec-51699-0349-119   | K4V   | 0.00417984 |           |
| spSpec-51780-0351-064   | G6III | 0.00418200 |           |
| spSpec-51941-0272-368   | A2I   | 0.00418230 |           |
| spSpec-51943-0300-352   | A3III | 0.00418675 |           |
| spSpec-51957-0304-029   | A8III | 0.00419323 |           |
| spSpec-51986-0294-338   | A2I   | 0.00420255 |           |
| spSpec-51671-0299-250   | B4V   | 0.00421027 |           |
| spSpec-51816-0360-504   | K4III | 0.00420518 |           |
| spSpec-51943-0284-488   | G2V   | 0.00420624 |           |
| spSpec-51943-0300-228   | B2III | 0.00420888 |           |
| spSpec-51999-0336-538   | A1I   | 0.00420987 |           |
| spSpec-52294-0327-484   | K4V   | 0.00421014 |           |
| spSpec-52367-0332-363   | A9V   | 0.00421163 |           |
| spSpec-51818-0358-637   | K3III | 0.00422444 |           |
| spSpec-51930-0285-247   | K4V   | 0.00422491 |           |
| spSpec-52000-0335-129   | F5II  | 0.00421878 |           |
| spSpec-51671-0299-369   | A9V   | 0.00422520 |           |
| spSpec-51792-0354-603   | A6V   | 0.00422785 |           |
| spSpec-51957-0304-584   | F8III | 0.00423085 |           |
| spSpec-51994-0309-242   | A6V   | 0.00422621 |           |
| spSpec-51997-0337-134   | F8V   | 0.00422923 |           |
| spSpec-51699-0349-562   | G4V   | 0.00423683 |           |
| spSpec-51984-0296-004   | G3V   | 0.00423959 |           |
| spSpec-52313-0333-381   | G0III | 0.00424137 |           |
| spSpec-51821-0359-178   | A7V   | 0.00425197 |           |
| spSpec-51943-0300-282   | A7V   | 0.00424559 |           |
| spSpec-51691-0350-518   | B8V   | 0.00427441 |           |
| Object       | Type | Distance | Object       | Type | Distance |
|--------------|------|----------|--------------|------|----------|
| spSpec-51990-0340-025 | B8I  | 0.00426613 | spSpec-51630-0266-346 | F7V  | 0.00433451 |
| spSpec-52313-0333-199 | B8I  | 0.00427315 | spSpec-51637-0306-150 | A8III | 0.00433483 |
| spSpec-51658-0282-202 | K4II | 0.00427907 | spSpec-51818-0358-071 | G8III | 0.00433219 |
| spSpec-51671-0299-197 | A3II | 0.00428183 | spSpec-52368-0331-367 | A8III | 0.00433218 |
| spSpec-51689-0312-065 | K4V  | 0.00428397 | spSpec-51609-0292-487 | A8III | 0.00433627 |
| spSpec-51900-0278-607 | A8V  | 0.00427569 | spSpec-51673-0313-190 | G6III | 0.00433704 |
| spSpec-51818-0358-528 | K0IV | 0.00434149 | spSpec-51943-0300-354 | F0IV  | 0.00444626 |
| spSpec-51909-0276-447 | F0IV | 0.00433555 | spSpec-51662-0308-406 | F0IV  | 0.00445966 |
| spSpec-51959-0297-332 | A7V  | 0.00434408 | spSpec-51688-0302-184 | A2I  | 0.00445842 |
| spSpec-51986-0294-485 | A8III | 0.00433654 | spSpec-51688-0302-367 | A9V  | 0.00445681 |
| spSpec-51663-0307-547 | B7III | 0.00434983 | spSpec-51788-0355-530 | K4II | 0.00445717 |
| spSpec-51688-0302-465 | A2I  | 0.00434922 | spSpec-51943-0284-510 | G3V  | 0.00446177 |
| spSpec-51910-0269-204 | K3II | 0.00435218 | spSpec-51613-0305-285 | G3V  | 0.00447057 |
| spSpec-51957-0304-377 | F0IV | 0.00435098 | spSpec-51615-0303-407 | F8III | 0.00446645 |
| spSpec-51990-0310-436 | G3V  | 0.00435354 | spSpec-51780-0351-599 | A9V  | 0.00446957 |
| spSpec-51703-0353-521 | K3II | 0.00436146 | spSpec-51990-0310-133 | A7V  | 0.00446537 |
| spSpec-51990-0310-486 | F5III | 0.00436174 | spSpec-51990-0310-184 | A2I  | 0.00446707 |
| spSpec-51957-0304-133 | F0IV | 0.00437446 | spSpec-51997-0337-051 | A6V  | 0.00447014 |
| spSpec-51959-0283-205 | K4II | 0.00437332 | spSpec-51699-0349-617 | A6III | 0.00447887 |
| spSpec-51994-0309-255 | A3II | 0.00437036 | spSpec-51942-0301-059 | F0V  | 0.00447700 |
| spSpec-51994-0309-573 | A8III | 0.00436917 | spSpec-51990-0289-277 | B7III | 0.00447828 |
| spSpec-51703-0353-516 | G6III | 0.00438927 | spSpec-51665-0311-111 | G2III | 0.00448963 |
| spSpec-51941-0290-594 | A7V  | 0.00438669 | spSpec-52368-0331-199 | A7V  | 0.00449266 |
| spSpec-51990-0310-134 | A6V  | 0.00439192 | spSpec-51613-0305-302 | G2III | 0.00450051 |
| spSpec-52367-0332-015 | F5III | 0.00439494 | spSpec-51943-0284-306 | F5II  | 0.00449988 |
| spSpec-51614-0281-003 | K3II | 0.00439848 | spSpec-51997-0337-279 | F5II  | 0.00449797 |
| spSpec-51688-0302-490 | B2I  | 0.00440111 | spSpec-51662-0308-357 | A6V  | 0.00450753 |
| spSpec-51788-0355-099 | K4III | 0.00439594 | spSpec-51816-0360-214 | F7V  | 0.00450920 |
| Source                  | Type | Slope | Source                  | Type | Slope       |
|------------------------|------|-------|------------------------|------|-------------|
| spSpec-51910-0269-125  | G5III| 0.00440047 | spSpec-51990-0289-248  | A8III| 0.00451106 |
| spSpec-52313-0333-632  | F7V  | 0.00440474 | spSpec-52367-0332-626  | A3III| 0.00451111 |
| spSpec-51957-0273-265  | G1V  | 0.00440625 | spSpec-52375-0326-192  | K4III| 0.00451259 |
| spSpec-51993-0334-016  | A6V  | 0.00440920 | spSpec-51989-0363-347  | G2IV | 0.00452397 |
| spSpec-52023-0287-435  | F6V  | 0.00441404 | spSpec-51662-0308-145  | A9V  | 0.00453010 |
| spSpec-51699-0349-115  | G6III| 0.00442072 | spSpec-51671-0299-022  | A7V  | 0.00452823 |
| spSpec-51957-0304-596  | K4V  | 0.00441848 | spSpec-51689-0312-023  | G2IV | 0.00453275 |
| spSpec-51985-0295-541  | A7V  | 0.00443207 | spSpec-51943-0284-444  | A3III| 0.00453489 |
| spSpec-51928-0291-497  | A8III| 0.00444070 | spSpec-51957-0273-249  | G6III| 0.00453036 |
| spSpec-51994-0309-493  | G5IV | 0.00443817 | spSpec-51789-0352-304  | G5III| 0.00454124 |
| spSpec-51691-0350-033  | K4III| 0.00445058 | spSpec-51943-0284-601  | F0IV | 0.00454343 |
| spSpec-51989-0363-586  | A8III| 0.00453931 | spSpec-51818-0358-610  | G6III| 0.00464333 |
| spSpec-51671-0299-097  | A8III| 0.00454829 | spSpec-51957-0304-192  | A1V  | 0.00464261 |
| spSpec-51792-0354-636  | G8II | 0.00454960 | spSpec-51690-0341-639  | A1V  | 0.00464942 |
| spSpec-51957-0273-147  | G3II | 0.00454910 | spSpec-51959-0297-478  | G6III| 0.00465247 |
| spSpec-52294-0327-022  | K2III| 0.00455068 | spSpec-51614-0281-297  | K4V  | 0.00466459 |
| spSpec-51608-0267-343  | G9III| 0.00456129 | spSpec-51691-0350-003  | G3V  | 0.00466478 |
| spSpec-51613-0305-115  | G9III| 0.00456350 | spSpec-51955-0298-341  | B7III| 0.00466393 |
| spSpec-51690-0341-394  | F8III| 0.00455707 | spSpec-51955-0298-567  | A3III| 0.00466826 |
| spSpec-51908-0277-248  | A8III| 0.00455927 | spSpec-52313-0333-073  | A1V  | 0.00466844 |
| spSpec-51913-0274-397  | A8III| 0.00456246 | spSpec-51909-0276-104  | G4V  | 0.00468379 |
| spSpec-51959-0297-569  | G4V  | 0.00456427 | spSpec-52368-0331-309  | A8III| 0.00467549 |
| spSpec-51780-0351-589  | F8III| 0.00456948 | spSpec-51663-0307-397  | G8III| 0.00469269 |
| spSpec-51789-0352-005  | A6V  | 0.00457413 | spSpec-52000-0335-619  | A8III| 0.00468618 |
| spSpec-51818-0358-352  | F5III| 0.00457459 | spSpec-51658-0282-190  | G5IV | 0.00470425 |
| spSpec-51941-0272-015  | F5III| 0.00457043 | spSpec-51671-0299-301  | A2I  | 0.00470200 |
| spSpec-51955-0298-485  | G3V  | 0.00456897 | spSpec-51673-0313-093  | G4V  | 0.00469589 |
| spSpec-51699-0349-219  | G9V  | 0.00457895 | spSpec-51990-0310-081  | A7I  | 0.00469843 |
| Object            | Type | SpSpEspec      | Value  | Object            | Type | SpSpEspec      | Value  |
|-------------------|------|----------------|--------|-------------------|------|----------------|--------|
| spSpec-51985-0295-171 | A8III | 0.00457572     |        | spSpec-51792-0354-595 | B7III | 0.00470507     |
| spSpec-51689-0312-350   | F8V   | 0.00459344     |        | spSpec-51909-0276-408 | K3III | 0.00471284     |
| spSpec-52368-0331-523   | K3III | 0.00458620     |        | spSpec-52023-0287-535 | F7V   | 0.00470897     |
| spSpec-51630-0266-336   | B1III | 0.00460123     |        | spSpec-51615-0303-294 | G2V   | 0.00472409     |
| spSpec-51816-0360-626   | K4V   | 0.00460268     |        | spSpec-51691-0342-436 | A3III | 0.00471838     |
| spSpec-51883-0271-540   | K3III | 0.00460182     |        | spSpec-51788-0355-143 | K2III | 0.00472048     |
| spSpec-51909-0270-305   | A2I   | 0.00460176     |        | spSpec-51614-0281-036 | F8III | 0.00473269     |
| spSpec-51959-0283-438   | A3III | 0.00460459     |        | spSpec-52368-0331-344 | F7V   | 0.00473302     |
| spSpec-51609-0292-030   | A8III | 0.00461158     |        | spSpec-51688-0302-169 | A8V   | 0.00474588     |
| spSpec-51789-0352-047   | K3III | 0.00461191     |        | spSpec-51994-0309-606 | A8III | 0.00473532     |
| spSpec-51818-0358-012   | G9V   | 0.00460688     |        | spSpec-51913-0274-360 | A8III | 0.00475427     |
| spSpec-51994-0309-270   | A3III | 0.00460649     |        | spSpec-51613-0305-389 | G9II  | 0.00475849     |
| spSpec-51663-0307-336   | A7I   | 0.00462919     |        | spSpec-51994-0293-302 | A8III | 0.00475960     |
| spSpec-51699-0349-614   | F9V   | 0.00463352     |        | spSpec-51780-0351-512 | G5III | 0.00477297     |
| spSpec-51788-0355-025   | G5IV  | 0.00462858     |        | spSpec-51818-0358-025 | A8V   | 0.00477155     |
| spSpec-51780-0351-507   | B9III | 0.00463924     |        | spSpec-51990-0289-319 | A3III | 0.00476985     |
| spSpec-51658-0282-486   | G6III | 0.00478607     |        | spSpec-52313-0333-496 | A8III | 0.00490505     |
| spSpec-51910-0275-542   | F9V   | 0.00479304     |        | spSpec-52367-0332-401 | A7I   | 0.00490664     |
| spSpec-51993-0334-461   | K0I   | 0.00479117     |        | spSpec-52368-0331-123 | F5III | 0.00490877     |
| spSpec-51609-0292-531   | F0IV  | 0.00479705     |        | spSpec-51658-0282-094 | A8V   | 0.00491906     |
| spSpec-51658-0282-058   | A2I   | 0.00479968     |        | spSpec-51990-0340-123 | F8V   | 0.00491889     |
| spSpec-51694-0338-290   | A8V   | 0.00480147     |        | spSpec-51788-0355-521 | G2III | 0.00493263     |
| spSpec-52282-0328-226   | A3V   | 0.00480298     |        | spSpec-51792-0354-233 | B1I   | 0.00493475     |
| spSpec-52294-0327-583   | F0I   | 0.00479985     |        | spSpec-51941-0272-289 | A8III | 0.00493137     |
| spSpec-51691-0342-266   | A8III | 0.00481360     |        | spSpec-51957-0273-404 | F7V   | 0.00492916     |
| spSpec-51788-0355-416   | K4III | 0.00481437     |        | spSpec-52375-0326-304 | A7V   | 0.00493178     |
| spSpec-51821-0359-428   | K4III | 0.00480604     |        | spSpec-51821-0359-613 | F5II  | 0.00494478     |
| spSpec-51633-0268-304   | G2IV  | 0.00482160     |        | spSpec-51957-0273-536 | G9V   | 0.00493680     |
| Object ID | Type   | 10000 M / dK 10000 M / dK |
|-----------|--------|--------------------------|
| spSpec-51699-0349-220 | G4V 0.00481859 | spSpec-51990-0340-475 A9V 0.00493802 |
| spSpec-51943-0300-194 | G9III 0.00482315 | spSpec-51990-0340-598 F5II 0.00494411 |
| spSpec-51943-0300-519 | A3III 0.00481874 | spSpec-52017-0366-053 A7V 0.00493517 |
| spSpec-52375-0326-590 | AII 0.00483271 | spSpec-51673-0313-360 G2IV 0.00495813 |
| spSpec-52017-0366-327 | A7I 0.00484217 | spSpec-51959-0283-355 A3III 0.00496352 |
| spSpec-51955-0298-386 | A7I 0.00484931 | spSpec-51663-0315-624 B2II 0.00497184 |
| spSpec-51990-0289-182 | F0IV 0.00484860 | spSpec-52000-0288-386 A9V 0.00496685 |
| spSpec-52282-0328-348 | A3III 0.00486407 | spSpec-51997-0337-095 G2III 0.00498455 |
| spSpec-51942-0301-404 | A1V 0.00487215 | spSpec-51997-0337-153 A9V 0.00498335 |
| spSpec-51959-0283-123 | K2III 0.00487447 | spSpec-51999-0286-388 F8III 0.00498385 |
| spSpec-51989-0363-312 | A8III 0.00487697 | spSpec-52367-0332-430 A2V 0.00497545 |
| spSpec-51615-0303-351 | F8III 0.00488918 | spSpec-51673-0313-355 A2I 0.00498590 |
| spSpec-51997-0337-614 | G3V 0.00488728 | spSpec-51691-0350-036 F5II 0.00499058 |
| spSpec-52056-0329-238 | B1.5I 0.00489149 | spSpec-51908-0277-309 A6V 0.00499452 |
| spSpec-51694-0338-241 | G4V 0.00490041 | spSpec-51942-0301-470 G6III 0.00499176 |
| spSpec-51986-0294-089 | A2V 0.00490228 | spSpec-51955-0298-503 G3V 0.00498550 |
| spSpec-51692-0339-329 | F5III 0.00490578 | spSpec-51658-0282-284 K4V 0.00500049 |
| spSpec-51692-0343-391 | F8V 0.00490977 | spSpec-51789-0352-352 B7III 0.00499623 |
| spSpec-51816-0360-212 | A2V 0.00490752 | spSpec-51909-0276-207 K4V 0.00500366 |
| spSpec-51957-0273-300 | B2III 0.00491088 | spSpec-51957-0304-594 G9V 0.00499753 |
| spSpec-51993-0334-547 | F8V 0.00491255 | spSpec-51984-0296-501 F0IV 0.00499969 |
| spSpec-51613-0305-482 | K3III 0.00501326 | spSpec-51688-0302-118 A8III 0.00509413 |
| spSpec-51673-0313-125 | G1I 0.00501194 | spSpec-51792-0354-626 K4III 0.00509412 |
| spSpec-51788-0355-627 | A7I 0.00501411 | spSpec-51821-0359-131 F8III 0.00508683 |
| spSpec-51908-0277-479 | G2V 0.00500599 | spSpec-51955-0298-358 A8III 0.00509333 |
| spSpec-51699-0349-586 | G6III 0.00501639 | spSpec-52000-0335-096 K4V 0.00509129 |
| spSpec-51780-0351-394 | A2I 0.00502330 | spSpec-51957-0304-241 M1V 0.00509748 |
| spSpec-51789-0352-054 | G9V 0.00501921 | spSpec-51910-0275-513 K4III 0.00510816 |
| Object Number | Type  | Distance | Object Number | Type  | Distance |
|---------------|-------|----------|---------------|-------|----------|
| spSpec-51994-0309-091 | A9V | 0.00502418 | spSpec-51928-0291-250 | G9III | 0.00511488 |
| spSpec-51662-0308-054 | A2V | 0.00503125 | spSpec-51930-0285-292 | K4V | 0.00512176 |
| spSpec-51689-0312-509 | A2I | 0.00503226 | spSpec-51816-0360-532 | F9V | 0.00513124 |
| spSpec-51941-0290-519 | A8III | 0.00502571 | spSpec-51943-0300-340 | F5III | 0.00512904 |
| spSpec-51990-0310-023 | F9V | 0.00503410 | spSpec-51984-0279-063 | G3V | 0.00512946 |
| spSpec-51608-0267-271 | B2III | 0.00504254 | spSpec-52000-0335-389 | K3III | 0.00512621 |
| spSpec-51900-0278-210 | G3V | 0.00503734 | spSpec-52370-0330-475 | K3III | 0.00512692 |
| spSpec-51908-0277-527 | F0IV | 0.00504367 | spSpec-51994-0309-124 | A3III | 0.00513929 |
| spSpec-51990-0310-215 | F7V | 0.00504052 | spSpec-51609-0292-202 | G8III | 0.00514645 |
| spSpec-51930-0285-320 | A3III | 0.00505447 | spSpec-51699-0349-013 | K4V | 0.00515024 |
| spSpec-51990-0340-575 | B2III | 0.00505178 | spSpec-51658-0282-054 | A8III | 0.00516301 |
| spSpec-51691-0342-467 | F5II | 0.00505759 | spSpec-51692-0339-274 | G4V | 0.00516409 |
| spSpec-51941-0272-430 | A8III | 0.00506104 | spSpec-51694-0338-085 | F8III | 0.00516288 |
| spSpec-52000-0335-344 | A2I | 0.00506462 | spSpec-51942-0301-480 | F4I | 0.00516395 |
| spSpec-52282-0328-279 | F0I | 0.00505590 | spSpec-52056-0329-071 | F7V | 0.00516363 |
| spSpec-51694-0338-226 | F8V | 0.00506950 | spSpec-51993-0334-086 | A8V | 0.00516925 |
| spSpec-51818-0358-597 | K3III | 0.00506615 | spSpec-51699-0349-208 | A6V | 0.00518328 |
| spSpec-51957-0304-052 | A3III | 0.00506798 | spSpec-51780-0351-152 | K3III | 0.00518073 |
| spSpec-51990-0310-524 | A8III | 0.00507407 | spSpec-51941-0290-574 | A8V | 0.00517939 |
| spSpec-51994-0293-366 | A3III | 0.00506748 | spSpec-51780-0351-574 | G3V | 0.00519499 |
| spSpec-51994-0293-395 | A6V | 0.00507421 | spSpec-51941-0272-170 | B2III | 0.00518732 |
| spSpec-52056-0329-294 | K3III | 0.00507143 | spSpec-51999-0336-241 | F5II | 0.00518589 |
| spSpec-51633-0268-140 | A8III | 0.00507551 | spSpec-51955-0298-206 | K4V | 0.00519576 |
| spSpec-51673-0313-506 | K4V | 0.00507820 | spSpec-51955-0298-034 | A6V | 0.00520569 |
| spSpec-51909-0276-097 | A2V | 0.00507687 | spSpec-51957-0273-140 | K3III | 0.00521441 |
| spSpec-51941-0272-307 | A7V | 0.00508131 | spSpec-51984-0296-180 | A2I | 0.00521213 |
| spSpec-51690-0341-629 | A7I | 0.00522494 | spSpec-51984-0279-020 | K4V | 0.00536083 |
| spSpec-51928-0291-220 | F8III | 0.00521549 | spSpec-51990-0310-356 | G9V | 0.00535791 |
| Source Number     | Spectral Type | Magnitude | Source Number     | Spectral Type | Magnitude |
|------------------|--------------|----------|------------------|--------------|----------|
| spSpec-52017-0366-486 | G6III        | 0.00523107 | spSpec-51692-0339-016 | G6III        | 0.00537334 |
| spSpec-51665-0311-277   | F5III        | 0.00523593 | spSpec-51957-0304-061   | K4V          | 0.00537346 |
| spSpec-51941-0290-476   | B7III        | 0.00523906 | spSpec-51910-0269-542   | F8V          | 0.00539257 |
| spSpec-52023-0287-269   | A1V          | 0.00524251 | spSpec-51989-0363-290   | G2IV         | 0.00539056 |
| spSpec-51699-0349-265   | A2V          | 0.00524501 | spSpec-52282-0328-420   | G6III        | 0.00539315 |
| spSpec-51821-0359-443   | G2IV         | 0.00524816 | spSpec-52368-0331-200   | G2III        | 0.00538620 |
| spSpec-51943-0284-517   | G5IV         | 0.00525826 | spSpec-52368-0331-427   | A4V          | 0.00540192 |
| spSpec-51957-0273-214   | A8V          | 0.00526459 | spSpec-51692-0339-016   | G6III        | 0.00537334 |
| spSpec-52282-0328-146   | G4V          | 0.00526824 | spSpec-51692-0339-016   | G6III        | 0.00537334 |
| spSpec-52313-0333-476   | A2I          | 0.00527113 | spSpec-51883-0271-321   | F6V          | 0.00540407 |
| spSpec-52368-0331-261   | B1I          | 0.00526935 | spSpec-51994-0293-427   | A3III        | 0.00539715 |
| spSpec-51637-0306-156   | A8V          | 0.00527659 | spSpec-52023-0287-111   | G9III        | 0.00541066 |
| spSpec-51671-0299-385   | A2V          | 0.00528262 | spSpec-51689-0312-491   | G9III        | 0.00541066 |
| spSpec-51663-0315-151   | G6III        | 0.00528881 | spSpec-51908-0277-414   | A2V          | 0.00540591 |
| spSpec-51671-0299-148   | G4V          | 0.00529484 | spSpec-51609-0292-395   | A2I          | 0.00542088 |
| spSpec-51789-0352-492   | F8II         | 0.00528875 | spSpec-51609-0292-494   | B7III        | 0.00542486 |
| spSpec-51993-0334-159   | A8III        | 0.00529062 | spSpec-51637-0306-327   | A8III        | 0.00541779 |
| spSpec-51637-0306-625   | F8II         | 0.00529539 | spSpec-51694-0338-091   | K3III        | 0.00541939 |
| spSpec-52375-0326-404   | F0IV         | 0.00529884 | spSpec-51900-0278-278   | F7V          | 0.00542190 |
| spSpec-51699-0349-041   | K4III        | 0.00530647 | spSpec-51993-0334-639   | F7V          | 0.00542174 |
| spSpec-51699-0349-536   | G6III        | 0.00531217 | spSpec-52056-0329-133   | G6III        | 0.00542468 |
| spSpec-51959-0283-353   | A3III        | 0.00530985 | spSpec-51816-0360-052   | K4V          | 0.00543445 |
| spSpec-51997-0337-572   | G4V          | 0.00531316 | spSpec-52368-0331-498   | K4V          | 0.00543329 |
| spSpec-51688-0302-404   | A9V          | 0.00532085 | spSpec-51694-0388-533   | A8III        | 0.00544283 |
| spSpec-51900-0278-546   | G2IV         | 0.00533208 | spSpec-51909-0276-390   | B7III        | 0.00545150 |
| spSpec-51994-0309-023   | K4V          | 0.00532784 | spSpec-51942-0301-383   | F8III        | 0.00544514 |
| spSpec-51955-0298-613   | B7III        | 0.00534270 | spSpec-51985-0295-064   | F8III        | 0.00545203 |
| spSpec-51986-0294-280   | K4V          | 0.00533748 | spSpec-52000-0335-398   | A3III        | 0.00545431 |
| Catalog   | Spectral Class | Magnitude | Catalog   | Spectral Class | Magnitude |
|-----------|----------------|-----------|-----------|----------------|-----------|
| spSpec-51990-0289-240 | G1V           | 0.00533756 | spSpec-51613-0305-301 | K4V           | 0.00545673 |
| spSpec-51792-0354-073 | B7III         | 0.00535557 | spSpec-51780-0351-384 | M1V           | 0.00546213 |
| spSpec-51943-0300-422 | G9V           | 0.00536166 | spSpec-51703-0353-443 | K4III         | 0.00547432 |
| spSpec-51959-0283-135 | F7V           | 0.00546942 | spSpec-51788-0355-188 | K3III         | 0.00559130 |
| spSpec-51989-0363-570 | G2IV          | 0.00546943 | spSpec-51957-0304-387 | G5III         | 0.00559231 |
| spSpec-51990-0310-126 | F8V           | 0.00547487 | spSpec-51910-0275-399 | G9V           | 0.00560113 |
| spSpec-51990-0340-324 | A1V           | 0.00546892 | spSpec-52294-0327-345 | F5II          | 0.00559901 |
| spSpec-51957-0273-325 | A6V           | 0.00547550 | spSpec-51990-0289-424 | A3III         | 0.00561072 |
| spSpec-51690-0341-193 | A2I           | 0.00548751 | spSpec-52370-0330-609 | K3III         | 0.00561159 |
| spSpec-51788-0355-078 | G6III         | 0.00549483 | spSpec-51658-0282-086 | A8III         | 0.00562063 |
| spSpec-51957-0304-430 | G9V           | 0.00549280 | spSpec-51673-0313-493 | A7I           | 0.00561555 |
| spSpec-51941-0290-293 | A7I           | 0.00550068 | spSpec-51694-0338-586 | A8III         | 0.00561636 |
| spSpec-51957-0273-279 | F5III         | 0.00549957 | spSpec-51699-0349-291 | F0IV          | 0.00562987 |
| spSpec-51957-0304-640 | G6III         | 0.00549555 | spSpec-51788-0355-234 | A1I           | 0.00562877 |
| spSpec-51908-0277-544 | A7I           | 0.00551028 | spSpec-51943-0300-369 | B9III         | 0.00563109 |
| spSpec-51990-0289-355 | A7I           | 0.00551093 | spSpec-51959-0297-046 | A7I           | 0.00562734 |
| spSpec-51990-0310-405 | A7V           | 0.00551389 | spSpec-51789-0352-440 | A8III         | 0.00563856 |
| spSpec-52375-0326-116 | A8V           | 0.00550829 | spSpec-51816-0360-005 | B7III         | 0.00563925 |
| spSpec-51821-0359-516 | B4V           | 0.00551798 | spSpec-51816-0360-173 | F7V           | 0.00563783 |
| spSpec-51990-0289-470 | A7I           | 0.00552128 | spSpec-52023-0287-460 | K4III         | 0.00563803 |
| spSpec-51691-0342-178 | F5III         | 0.00553292 | spSpec-51816-0360-008 | G6III         | 0.00564598 |
| spSpec-51699-0349-330 | A7V           | 0.00553274 | spSpec-51955-0298-388 | A1V           | 0.00565281 |
| spSpec-51909-0276-317 | A8V           | 0.00552893 | spSpec-51821-0359-544 | G5I           | 0.00565992 |
| spSpec-51671-0299-375 | A9V           | 0.00554086 | spSpec-51821-0359-149 | G1I           | 0.00567383 |
| spSpec-51909-0276-478 | B7III         | 0.00553556 | spSpec-51957-0273-524 | A8III         | 0.00567455 |
| spSpec-51955-0298-250 | A1V           | 0.00554109 | spSpec-51997-0337-080 | K2III         | 0.00566671 |
| spSpec-51999-0286-250 | F9V           | 0.00553959 | spSpec-52368-0331-437 | K4III         | 0.00566853 |
| spSpec-51665-0311-437 | G6III         | 0.00556338 | spSpec-51821-0359-420 | K3III         | 0.00567752 |
| Spectrum ID       | Type   | Log g | Spectrum ID       | Type   | Log g |
|------------------|--------|-------|------------------|--------|-------|
| spSpec-51994-0293-305 | A9V    | 0.00555987 | spSpec-52000-0335-036 | F7V    | 0.00568469 |
| spSpec-51789-0352-359 | F8III  | 0.00556729 | spSpec-51821-0359-625 | A7I    | 0.00568653 |
| spSpec-52370-0330-083 | K2III  | 0.00556827 | spSpec-51615-0303-638 | G2V    | 0.00569904 |
| spSpec-51694-0338-435 | F5II   | 0.00557852 | spSpec-51699-0349-097 | A2V    | 0.00569883 |
| spSpec-51699-0349-177 | B7III  | 0.00558112 | spSpec-52017-0366-297 | F5I    | 0.00569906 |
| spSpec-51910-0269-206 | M1V    | 0.00557504 | spSpec-52368-0331-252 | A7V    | 0.00569585 |
| spSpec-51614-0281-222 | A8V    | 0.00558891 | spSpec-52368-0331-058 | G4V    | 0.00571084 |
| spSpec-51688-0302-203 | G9V    | 0.00558701 | spSpec-51665-0311-595 | F5II   | 0.00572209 |
| spSpec-51691-0342-397 | K2III  | 0.00572322 | spSpec-52375-0326-525 | K2III  | 0.00585079 |
| spSpec-51703-0353-426 | F5III  | 0.00572161 | spSpec-51818-0358-379 | A1V    | 0.00585555 |
| spSpec-51789-0352-274 | K3III  | 0.00572340 | spSpec-51821-0359-489 | A3III  | 0.00586690 |
| spSpec-51816-0360-332 | G6III  | 0.00571977 | spSpec-51990-0310-484 | A3III  | 0.00587371 |
| spSpec-51662-0308-418 | B4V    | 0.00572790 | spSpec-51630-0266-483 | F0IV   | 0.00588142 |
| spSpec-51900-0278-259 | K3III  | 0.00572898 | spSpec-51816-0360-053 | B4V    | 0.00587828 |
| spSpec-51930-0285-267 | G6III  | 0.00574478 | spSpec-51941-0290-176 | B7III  | 0.00587872 |
| spSpec-51943-0300-092 | F0IV   | 0.00575137 | spSpec-51959-0283-012 | A8III  | 0.00587803 |
| spSpec-52313-0333-379 | M1V    | 0.00575109 | spSpec-52367-0332-349 | B7III  | 0.00587968 |
| spSpec-52375-0326-219 | K3III  | 0.00574891 | spSpec-52375-0326-059 | B7III  | 0.00588160 |
| spSpec-52294-0327-200 | A8III  | 0.00575619 | spSpec-51957-0304-003 | F8V    | 0.00588845 |
| spSpec-52313-0333-221 | G6III  | 0.00575733 | spSpec-52023-0287-309 | A8III  | 0.00589164 |
| spSpec-51608-0267-221 | A3III  | 0.00578186 | spSpec-52023-0287-490 | G9V    | 0.00589159 |
| spSpec-51957-0273-217 | A8III  | 0.00577509 | spSpec-51990-0340-242 | A8III  | 0.00590197 |
| spSpec-51959-0283-346 | K4V    | 0.00578075 | spSpec-51994-0293-023 | A3III  | 0.00590112 |
| spSpec-51990-0310-099 | F8III  | 0.00578211 | spSpec-51658-0282-002 | F8III  | 0.00591499 |
| spSpec-51792-0354-547 | A7I    | 0.00579206 | spSpec-51990-0310-318 | F0IV   | 0.00590723 |
| spSpec-51908-0277-325 | A2I    | 0.00579167 | spSpec-52294-0327-399 | B7III  | 0.00591220 |
| spSpec-51957-0304-066 | F8III  | 0.00579304 | spSpec-51615-0303-389 | A8III  | 0.00592298 |
| spSpec-52000-0335-393 | A3III  | 0.00579435 | spSpec-51658-0282-494 | G6III  | 0.00591964 |
| Object ID          | Type   | Distance   | Name  | Distance   | Type   |
|-------------------|--------|------------|-------|------------|--------|
| spSpec-52367-0332-102 | K4III | 0.00578552 | spSpec-51816-0360-539 | A2I | 0.00592246 |
| spSpec-51910-0275-325   | F5III | 0.00580421 | spSpec-51691-0350-524 | K4V | 0.00593377 |
| spSpec-51955-0298-228    | A8V   | 0.00581179 | spSpec-51928-0291-094 | O6.5III | 0.00592550 |
| spSpec-51957-0304-215    | F8V   | 0.00580837 | spSpec-52056-0329-590 | F0IV | 0.00594180 |
| spSpec-51985-0295-449    | K4V   | 0.00581380 | spSpec-51608-0267-487 | M1V | 0.00594953 |
| spSpec-52023-0287-524    | G2IV  | 0.00581371 | spSpec-51671-0299-114 | G2IV | 0.00594711 |
| spSpec-51671-0299-421    | G5III | 0.00582009 | spSpec-51816-0360-560 | G8III | 0.00594621 |
| spSpec-52000-0335-429    | K3III | 0.00582043 | spSpec-51883-0271-052 | K4III | 0.00594619 |
| spSpec-51658-0282-614    | A8III | 0.00582734 | spSpec-51662-0308-444 | M1V | 0.00596248 |
| spSpec-52023-0287-198    | A9V   | 0.00582647 | spSpec-51930-0285-359 | F0IV | 0.00596051 |
| spSpec-51955-0298-150    | A7I   | 0.00584015 | spSpec-51943-0300-086 | B2III | 0.00596558 |
| spSpec-51658-0282-617    | A8III | 0.00585431 | spSpec-51883-0271-495 | F8III | 0.00597841 |
| spSpec-51997-0337-065    | F5II  | 0.00584955 | spSpec-52282-0328-219 | F0IV | 0.00599835 |
| spSpec-52375-0326-621    | F8III | 0.00600468 | spSpec-51999-0286-480 | F0IV | 0.00615039 |
| spSpec-51609-0292-366    | B7III | 0.00600901 | spSpec-51910-0269-301 | F5III | 0.00617462 |
| spSpec-51910-0269-151    | G2III | 0.00601023 | spSpec-51909-0276-458 | G6III | 0.00618015 |
| spSpec-51614-0281-545    | G6III | 0.00602944 | spSpec-51957-0273-532 | A2I | 0.00618211 |
| spSpec-51615-0303-416    | F8V   | 0.00604542 | spSpec-51957-0304-534 | B4V | 0.00617763 |
| spSpec-51957-0273-304    | G9III | 0.00605282 | spSpec-51930-0285-571 | F8III | 0.00619363 |
| spSpec-51957-0273-506    | A8V   | 0.00604580 | spSpec-51663-0315-060 | A7V | 0.00620131 |
| spSpec-51957-0304-078    | G9V   | 0.00605130 | spSpec-51692-0339-199 | B7III | 0.00620046 |
| spSpec-52023-0287-279    | A1I   | 0.00604528 | spSpec-51957-0304-432 | F8III | 0.00620438 |
| spSpec-51637-0306-609    | A8III | 0.00606727 | spSpec-51957-0304-620 | G9V | 0.00620149 |
| spSpec-51662-0308-195    | A2V   | 0.00607959 | spSpec-52294-0327-299 | A1V | 0.00620227 |
| spSpec-51691-0342-425    | G8III | 0.00607762 | spSpec-51959-0283-020 | A8III | 0.00621302 |
| spSpec-51909-0276-011    | A2I   | 0.00607710 | spSpec-51955-0298-608 | A1V | 0.00622456 |
| spSpec-51989-0363-281    | G6III | 0.00607532 | spSpec-51658-0282-517 | G6III | 0.00623012 |
| spSpec-52375-0326-135    | M1I   | 0.00607657 | spSpec-52370-0330-314 | A8V | 0.00623420 |
| Source              | Type   | Value   | Source              | Type   | Value   |
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| spSpec-51663-0307-085 | B7III  | 0.00608507 | spSpec-51665-0311-024 | F8III  | 0.00624144 |
| spSpec-51957-0304-606 | G9V    | 0.00609389 | spSpec-51984-0279-536 | A8III  | 0.00623546 |
| spSpec-51994-0293-271 | A3III  | 0.00609406 | spSpec-51990-0310-370 | F5III  | 0.00624263 |
| spSpec-51613-0305-309 | G6III  | 0.00609697 | spSpec-52375-0326-165 | A1V    | 0.00623798 |
| spSpec-51699-0349-558 | F8III  | 0.00610463 | spSpec-51910-0269-216 | G9V    | 0.00625887 |
| spSpec-51959-0283-508 | B1I    | 0.00610250 | spSpec-51942-0301-333 | A1V    | 0.00625943 |
| spSpec-52313-0333-190 | A8V    | 0.00609659 | spSpec-51994-0293-476 | A8V    | 0.00625658 |
| spSpec-51671-0299-398 | G9V    | 0.00611279 | spSpec-51941-0290-166 | A1V    | 0.00627415 |
| spSpec-51942-0301-131 | K3III  | 0.00611144 | spSpec-51614-0281-409 | A3III  | 0.00629367 |
| spSpec-51658-0282-205 | K3III  | 0.00612353 | spSpec-51673-0313-166 | G1V    | 0.00630293 |
| spSpec-51818-0358-459 | A1V    | 0.00612456 | spSpec-51688-0302-001 | A8V    | 0.00629945 |
| spSpec-51943-0300-598 | F5II   | 0.00611814 | spSpec-51997-0337-524 | B4V    | 0.00630468 |
| spSpec-51671-0299-359 | A8V    | 0.00609659 | spSpec-51959-0297-515 | A8III  | 0.00630040 |
| spSpec-51699-0349-558 | F8III  | 0.00610463 | spSpec-51910-0269-216 | G9V    | 0.00625887 |
| spSpec-51959-0283-508 | B1I    | 0.00610250 | spSpec-51942-0301-333 | A1V    | 0.00625943 |
| spSpec-51671-0299-359 | A8V    | 0.00609659 | spSpec-51994-0293-476 | A8V    | 0.00625658 |
| spSpec-51699-0349-558 | F8III  | 0.00610463 | spSpec-51910-0269-216 | G9V    | 0.00625887 |
| spSpec-51959-0283-508 | B1I    | 0.00610250 | spSpec-51942-0301-333 | A1V    | 0.00625943 |
| spSpec-51671-0299-359 | A8V    | 0.00609659 | spSpec-51994-0293-476 | A8V    | 0.00625658 |
| spSpec-51699-0349-558 | F8III  | 0.00610463 | spSpec-51910-0269-216 | G9V    | 0.00625887 |
| spSpec-51959-0283-508 | B1I    | 0.00610250 | spSpec-51942-0301-333 | A1V    | 0.00625943 |
| Star Name       | Type   | Spectral Type | Magnitude |
|----------------|--------|---------------|-----------|
| spSpec-51955-0298-557 | A7I    | 0.00638901   |           |
| spSpec-51990-0310-620  | F5III  | 0.00639177   |           |
| spSpec-52282-0328-249   | K3III  | 0.00638818   |           |
| spSpec-52282-0328-414   | G3V    | 0.00638955   |           |
| spSpec-51959-0297-608   | G9V    | 0.00639673   |           |
| spSpec-51984-0296-518   | K4V    | 0.00640191   |           |
| spSpec-52017-0366-492   | K4V    | 0.00639820   |           |
| spSpec-51821-0359-619   | K2III  | 0.00640860   |           |
| spSpec-51883-0271-281   | A8V    | 0.00641418   |           |
| spSpec-51957-0304-424   | G2IV   | 0.00640856   |           |
| spSpec-51959-0297-630   | G6III  | 0.00641200   |           |
| spSpec-51957-0273-228   | A8III  | 0.00642582   |           |
| spSpec-51658-0282-102   | A2V    | 0.00643568   |           |
| spSpec-51694-0338-637   | A8V    | 0.00643686   |           |
| spSpec-51942-0301-371   | B7III  | 0.00644116   |           |
| spSpec-52313-0333-375   | A2I    | 0.00643699   |           |
| spSpec-51613-0305-265   | K4V    | 0.00644934   |           |
| spSpec-51941-0290-363   | A8V    | 0.00645439   |           |
| spSpec-51955-0298-218   | A3III  | 0.00644917   |           |
| spSpec-51999-0286-406   | G6III  | 0.00645337   |           |
| spSpec-52000-0288-279   | A8III  | 0.00644903   |           |
| spSpec-51788-0355-548   | F5II   | 0.00646373   |           |
| spSpec-51984-0296-418   | F8III  | 0.00645726   |           |
| spSpec-51957-0304-127   | G8II   | 0.00662322   |           |
| spSpec-51943-0300-346   | A8III  | 0.00664090   |           |
| spSpec-51930-0285-248   | G6III  | 0.00666130   |           |
| spSpec-51930-0285-284   | G9V    | 0.00666240   |           |
| spSpec-51999-0286-290   | K0III  | 0.00666025   |           |
| Object ID      | Type    | Flux     | Object ID      | Type    | Flux     |
|----------------|---------|----------|----------------|---------|----------|
| spSpec-51614-0281-473 | G6III   | 0.00667330 | spSpec-51928-0291-340 | A3III | 0.00686011 |
| spSpec-51671-0299-071 | A2I     | 0.00667096 | spSpec-51997-0337-264 | A2V   | 0.00685939 |
| spSpec-51789-0352-554 | G5III   | 0.00666613 | spSpec-51999-0336-549 | F8III | 0.00686413 |
| spSpec-51909-0270-030 | G8III   | 0.00667108 | spSpec-51908-0277-232 | B7III | 0.00686742 |
| spSpec-52000-0335-565 | K4III   | 0.00666828 | spSpec-51691-0342-317 | A8III | 0.00688753 |
| spSpec-51612-0280-219 | G6III   | 0.00667527 | spSpec-51821-0359-462 | F5II  | 0.00690889 |
| spSpec-51613-0305-390 | G9V     | 0.00669201 | spSpec-51984-0279-352 | B2III | 0.00691481 |
| spSpec-51941-0290-309 | A1V     | 0.00668692 | spSpec-51986-0294-590 | B7III | 0.00690558 |
| spSpec-51663-0307-267 | A7I     | 0.00671169 | spSpec-51780-0351-636 | B9III | 0.00691911 |
| spSpec-51942-0301-442 | A9V     | 0.00670844 | spSpec-51993-0334-215 | A2I   | 0.00692453 |
| spSpec-51614-0281-205 | G2IV    | 0.00671731 | spSpec-52294-0327-238 | G9V   | 0.00691714 |
| spSpec-51818-0358-518 | F8III   | 0.00672287 | spSpec-51986-0294-120 | A8III | 0.00692829 |
| spSpec-51614-0281-426 | K4V     | 0.00673252 | spSpec-51990-0289-553 | A2V   | 0.00692988 |
| spSpec-51818-0358-387 | F7V     | 0.00673208 | spSpec-52368-0331-105 | G2III | 0.00694441 |
| spSpec-51614-0281-147 | A2I     | 0.00674242 | spSpec-51614-0281-514 | G9V   | 0.00694588 |
| spSpec-51816-0360-340 | K4V     | 0.00674339 | spSpec-51691-0350-351 | O6.5III | 0.00696370 |
| spSpec-51909-0270-145 | G2III   | 0.00673664 | spSpec-51789-0352-560 | G9V   | 0.00695774 |
| spSpec-52282-0328-228 | B7III   | 0.00675676 | spSpec-51692-0339-115 | A1V   | 0.00696509 |
| spSpec-52375-0326-024 | A3III   | 0.00676485 | spSpec-52056-0329-237 | G6III | 0.00697095 |
| spSpec-51930-0285-469 | K3III   | 0.00676948 | spSpec-51957-0304-074 | K4V   | 0.00697841 |
| spSpec-52056-0329-004 | F5II    | 0.00677001 | spSpec-51690-0341-075 | G9V   | 0.00699802 |
| spSpec-51694-0338-192 | A2I     | 0.00677591 | spSpec-51694-0338-311 | A9V   | 0.00700303 |
| spSpec-51941-0290-335 | A8III   | 0.00678597 | spSpec-51613-0305-322 | G6III | 0.00701944 |
| spSpec-51692-0343-343 | G9V     | 0.00680614 | spSpec-51614-0281-582 | G9V   | 0.00702409 |
| spSpec-51821-0359-452 | K3III   | 0.00681607 | spSpec-51986-0294-423 | O6.5V | 0.00701563 |
| spSpec-51955-0298-329 | M1V     | 0.00682490 | spSpec-51788-0355-123 | G8III | 0.00703272 |
| spSpec-51999-0336-346 | F5II    | 0.00682226 | spSpec-51955-0298-318 | A3III | 0.00703793 |
| spSpec-51789-0352-033 | B1I     | 0.00682733 | spSpec-51663-0315-163 | A8III | 0.00704650 |
| Source                  | Type | Temperature | Distance | Source                  | Type | Temperature |
|------------------------|------|-------------|----------|------------------------|------|-------------|
| spSpec-51941-0290-282 | A3III | 0.00705937  |          | spSpec-51691-0350-063  | B7III | 0.00732322  |
| spSpec-51662-0308-038  | G0I   | 0.00707871  |          | spSpec-51957-0273-472  | F0IV  | 0.00732238  |
| spSpec-51821-0359-491  | A3III | 0.00709110  |          | spSpec-51984-0279-386  | K3III | 0.00731986  |
| spSpec-51609-0292-083  | K4III | 0.00709876  |          | spSpec-52313-0333-191  | A2I   | 0.00731613  |
| spSpec-51990-0289-415  | A7I   | 0.00710550  |          | spSpec-52000-0288-205  | A8III | 0.00734598  |
| spSpec-52282-0328-593  | G3V   | 0.00711354  |          | spSpec-51703-0353-101  | G9V   | 0.00737195  |
| spSpec-51633-0268-070  | A8III | 0.00713208  |          | spSpec-51941-0290-548  | A7I   | 0.00738369  |
| spSpec-51955-0298-299  | A7I   | 0.00713446  |          | spSpec-51957-0273-435  | A7I   | 0.00738224  |
| spSpec-52367-0332-187  | A8III | 0.00713301  |          | spSpec-51957-0304-015  | G6III | 0.00738360  |
| spSpec-51614-0281-209  | F8V   | 0.00713936  |          | spSpec-51688-0302-062  | A7I   | 0.00738947  |
| spSpec-51658-0282-192  | M1V   | 0.00713630  |          | spSpec-51816-0360-569  | F8III | 0.00738671  |
| spSpec-52294-0327-543  | A8V   | 0.00713877  |          | spSpec-51673-0313-150  | G0I   | 0.00739529  |
| spSpec-51941-0290-326  | A3III | 0.00715488  |          | spSpec-51692-0339-031  | K4V   | 0.00739678  |
| spSpec-52023-0287-133  | A9V   | 0.00715314  |          | spSpec-51692-0339-218  | G9III | 0.00740715  |
| spSpec-51789-0352-131  | B7III | 0.00716322  |          | spSpec-51990-0289-049  | A8V   | 0.00740819  |
| spSpec-51816-0360-454  | A7I   | 0.00718398  |          | spSpec-51990-0289-471  | B8III | 0.00741037  |
| spSpec-51908-0277-234  | F5II  | 0.00718436  |          | spSpec-52294-0327-180  | A3III | 0.00742264  |
| spSpec-51614-0281-455  | K4V   | 0.00718640  |          | spSpec-52368-0331-260  | M1V   | 0.00741731  |
| spSpec-51673-0313-127  | G4V   | 0.00719379  |          | spSpec-51665-0311-469  | K4III | 0.00744142  |
| spSpec-51994-0309-279  | K4V   | 0.00719129  |          | spSpec-51703-0353-091  | G9V   | 0.00743996  |
| spSpec-52000-0288-358  | A7I   | 0.00720651  |          | spSpec-52367-0332-454  | K4V   | 0.00744896  |
| spSpec-51941-0290-342  | B7III | 0.00722383  |          | spSpec-51608-0267-359  | A8V   | 0.00745844  |
| spSpec-51990-0289-346  | A1V   | 0.00722029  |          | spSpec-51780-0351-577  | M1V   | 0.00746680  |
| spSpec-51913-0274-568  | K3III | 0.00723955  |          | spSpec-51691-0342-377  | A2I   | 0.00747994  |
| spSpec-51941-0290-008  | B2III | 0.00723729  |          | spSpec-51788-0355-639  | G5III | 0.00748040  |
| spSpec-51941-0290-333  | G6III | 0.00723976  |          | spSpec-51990-0289-613  | A7I   | 0.00748514  |
| spSpec-51986-0294-623  | G6III | 0.00724386  |          | spSpec-51941-0272-512  | G6III | 0.00750478  |
| spSpec-51993-0334-449  | G9V   | 0.00724349  |          | spSpec-51942-0301-365  | A8V   | 0.00749715  |
| Identifier     | Spectral Type | Effective Temperature | Identifier     | Spectral Type | Effective Temperature |
|----------------|---------------|-----------------------|----------------|---------------|-----------------------|
| spSpec-51663-0315-192 | F8III         | 0.00724910            | spSpec-51703-0353-206 | G6III         | 0.00750510            |
| spSpec-51821-0359-312  | K4V           | 0.00726146            | spSpec-51821-0359-573 | K0III         | 0.00750582            |
| spSpec-51994-0293-376  | A8III         | 0.00726735            | spSpec-52367-0332-301 | F8III         | 0.00751641            |
| spSpec-51908-0277-546  | A2I           | 0.00729983            | spSpec-51613-0305-362 | A8III         | 0.00754067            |
| spSpec-51673-0313-113  | A7I           | 0.00730880            | spSpec-51942-0301-598 | G4V           | 0.00756548            |
| spSpec-52294-0327-041  | F5III         | 0.00757511            | spSpec-51989-0363-542 | G9V           | 0.00779698            |
| spSpec-51689-0312-056  | A3III         | 0.00759731            | spSpec-52367-0332-118 | F5II          | 0.00780912            |
| spSpec-51943-0300-087  | F5III         | 0.00759739            | spSpec-51662-0308-065 | G9V           | 0.00784319            |
| spSpec-51990-0310-259  | A8V           | 0.00759613            | spSpec-51671-0399-367 | F5III         | 0.00783887            |
| spSpec-51959-0283-133  | A8III         | 0.00761059            | spSpec-51910-0269-139 | G5IV          | 0.00783666            |
| spSpec-51994-0293-125  | A3III         | 0.00762101            | spSpec-51909-0270-029 | A2I           | 0.00785282            |
| spSpec-51690-0341-400  | B7III         | 0.00762750            | spSpec-51688-0302-600 | K4III         | 0.00785930            |
| spSpec-51942-0301-597  | A1V           | 0.00763229            | spSpec-51689-0312-344 | G2III         | 0.00788660            |
| spSpec-51986-0294-586  | G6III         | 0.00765303            | spSpec-51941-0272-274 | K4V           | 0.00789313            |
| spSpec-51613-0305-313  | G9V           | 0.00765643            | spSpec-52368-0331-316 | A1V           | 0.00789481            |
| spSpec-51633-0268-036  | A3III         | 0.00766448            | spSpec-51957-0304-030 | G6III         | 0.00791747            |
| spSpec-51663-0307-228  | A7I           | 0.00765604            | spSpec-51994-0309-410 | G4V           | 0.00792763            |
| spSpec-51955-0298-602  | F8III         | 0.00765813            | spSpec-51614-0281-596 | G9V           | 0.00793532            |
| spSpec-51792-0354-443  | G9V           | 0.00767890            | spSpec-51665-0311-461 | A3III         | 0.00796628            |
| spSpec-52000-0288-306  | B7III         | 0.00768542            | spSpec-51997-0337-447 | M1V           | 0.00798053            |
| spSpec-52367-0332-529  | B7I           | 0.00769324            | spSpec-51909-0270-602 | F8III         | 0.00799287            |
| spSpec-51614-0281-122  | G6III         | 0.00771093            | spSpec-51689-0312-542 | G9V           | 0.00800488            |
| spSpec-51994-0309-535  | G8II          | 0.00771311            | spSpec-51663-0307-158 | B2III         | 0.00802474            |
| spSpec-51943-0284-145  | G4V           | 0.00771584            | spSpec-52000-0288-426 | A8III         | 0.00802375            |
| spSpec-51789-0352-355  | G9V           | 0.00773267            | spSpec-51665-0311-422 | K3III         | 0.00802547            |
| spSpec-51792-0354-353  | K3III         | 0.00773260            | spSpec-51630-0266-378 | F5III         | 0.00803605            |
| spSpec-51909-0276-090  | G6III         | 0.00774054            | spSpec-51957-0273-414 | A8III         | 0.00803782            |
| spSpec-51942-0301-221  | B1I           | 0.00774180            | spSpec-51663-0307-612 | A1V           | 0.00805367            |
| Filename                  | Type | Value   | Filename                  | Type | Value   |
|--------------------------|------|---------|--------------------------|------|---------|
| spSpec-51955-0298-028    | A7I  | 0.00775494 | spSpec-51699-0349-495    | B7III| 0.00805731 |
| spSpec-51994-0309-635    | A9V  | 0.00774833 | spSpec-51789-0352-075    | B7III| 0.00805886 |
| spSpec-51691-0350-617    | G9V  | 0.00776307 | spSpec-51613-0305-308    | G6III| 0.00807076 |
| spSpec-51699-0349-623    | G9V  | 0.00776859 | spSpec-52367-0332-584    | G9V  | 0.00807245 |
| spSpec-51789-0352-630    | F5III| 0.00777448 | spSpec-51613-0305-325    | F7V  | 0.00807764 |
| spSpec-51941-0272-128    | G8III| 0.00776975 | spSpec-51942-0301-208    | G8II | 0.00809427 |
| spSpec-51671-0299-620    | A8V  | 0.00777923 | spSpec-52017-0366-007    | G9V  | 0.00808917 |
| spSpec-51690-0341-189    | G9V  | 0.00777919 | spSpec-51615-0303-468    | K3III| 0.00810803 |
| spSpec-51821-0359-634    | F8III| 0.00777514 | spSpec-51910-0269-019    | G8II | 0.00811007 |
| spSpec-51663-0307-142    | A7I  | 0.00778511 | spSpec-52056-0329-297    | K4III| 0.00811060 |
| spSpec-52375-0326-139    | F5II | 0.00811010 | spSpec-51699-0349-508    | F5II | 0.00837817 |
| spSpec-51994-0293-364    | A2I  | 0.00811515 | spSpec-51789-0352-543    | B7III| 0.00838553 |
| spSpec-51994-0309-339    | A8III| 0.00811864 | spSpec-51942-0301-543    | G2IV | 0.00840831 |
| spSpec-51788-0355-332    | F8III| 0.00814817 | spSpec-51942-0301-618    | F4I  | 0.00840573 |
| spSpec-51994-0309-480    | B7III| 0.00815717 | spSpec-51816-0360-622    | G6III| 0.00841520 |
| spSpec-51909-0276-479    | G6III| 0.00816673 | spSpec-51612-0280-621    | F5II | 0.00845102 |
| spSpec-52294-0327-369    | B1III| 0.00817496 | spSpec-51614-0281-476    | A2V  | 0.00844800 |
| spSpec-52294-0327-131    | A2V  | 0.00817658 | spSpec-51688-0302-187    | F4I  | 0.00845474 |
| spSpec-51909-0270-181    | A3III| 0.00819105 | spSpec-52056-0329-620    | G9V  | 0.00844654 |
| spSpec-51990-0340-299    | A1V  | 0.00818805 | spSpec-51986-0294-458    | A8V  | 0.00847338 |
| spSpec-51994-0293-190    | A1V  | 0.00818632 | spSpec-51990-0310-618    | K4III| 0.00847150 |
| spSpec-51788-0355-432    | G9V  | 0.00819720 | spSpec-51990-0340-006    | A1V  | 0.00846770 |
| spSpec-51986-0294-255    | A8III| 0.00820436 | spSpec-51694-0338-445    | B7III| 0.00849348 |
| spSpec-52000-0335-463    | B7III| 0.00819972 | spSpec-52017-0366-266    | A1V  | 0.00850498 |
| spSpec-51816-0360-451    | G9V  | 0.00822473 | spSpec-51910-0269-201    | M0V  | 0.00850603 |
| spSpec-51957-0273-020    | A3III| 0.00822447 | spSpec-51990-0310-135    | G9V  | 0.00850824 |
| spSpec-51989-0363-411    | F8III| 0.00822095 | spSpec-52000-0335-466    | A8III| 0.00851013 |
| spSpec-52370-0330-455    | A2I  | 0.00825357 | spSpec-52375-0326-380    | A3III| 0.00851292 |
| Identifier     | Type   | Distance         | Identifier     | Type   | Distance         |
|----------------|--------|------------------|----------------|--------|------------------|
| spSpec-51691-0350-602 | F8III | 0.00826702      | spSpec-51663-0307-332 | A8III | 0.00852977      |
| spSpec-51792-0354-497   | G0I   | 0.00827283      | spSpec-51673-0313-057 | K4III | 0.00853380      |
| spSpec-51994-0309-264   | F5II  | 0.00826507      | spSpec-51614-0281-127 | M0V   | 0.00854360      |
| spSpec-51613-0305-572   | F5II  | 0.00830023      | spSpec-51615-0303-331 | G9V   | 0.00853553      |
| spSpec-51955-0298-356   | A1I   | 0.00829644      | spSpec-51909-0270-210 | A8V   | 0.00854177      |
| spSpec-51908-0277-612   | A2I   | 0.00830715      | spSpec-51688-0302-512 | A8III | 0.00857379      |
| spSpec-51986-0294-331   | A7I   | 0.00831717      | spSpec-51613-0305-264 | G9V   | 0.00858194      |
| spSpec-51990-0289-614   | A3III | 0.00832015      | spSpec-51941-0290-017 | A8III | 0.00861433      |
| spSpec-51816-0360-197   | A1V   | 0.00832647      | spSpec-51663-0307-283 | A1V   | 0.00862971      |
| spSpec-51637-0306-341   | G9V   | 0.00835087      | spSpec-51984-0296-490 | F0IV  | 0.00864146      |
| spSpec-51788-0355-009   | G2III | 0.00835000      | spSpec-51821-0359-445 | A8III | 0.00865393      |
| spSpec-52367-0332-043   | A2I   | 0.00834820      | spSpec-51994-0293-611 | A1V   | 0.00865032      |
| spSpec-51691-0350-304   | A1I   | 0.00835773      | spSpec-51928-0291-280 | F5II  | 0.00865667      |
| spSpec-52056-0329-273   | F5II  | 0.00837419      | spSpec-51930-0285-290 | K4III | 0.00865866      |
| spSpec-52367-0332-340   | A8III | 0.00837418      | spSpec-51792-0354-126 | F5II  | 0.00868932      |
| spSpec-51665-0311-142   | M0V   | 0.00870479      | spSpec-51999-0286-283 | F8III | 0.00898635      |
| spSpec-51691-0350-603   | A1I   | 0.00870432      | spSpec-51816-0360-089 | K2III | 0.00900482      |
| spSpec-51957-0273-615   | A6V   | 0.00870861      | spSpec-51990-0310-090 | A7I   | 0.00901091      |
| spSpec-51957-0304-005   | K3III | 0.00872442      | spSpec-51789-0352-171 | A3III | 0.00902436      |
| spSpec-51994-0293-083   | A3III | 0.00872008      | spSpec-52282-0328-444 | A8V   | 0.00902202      |
| spSpec-51994-0293-325   | B7III | 0.00872072      | spSpec-51663-0307-163 | A1V   | 0.00903288      |
| spSpec-52017-0366-358   | F5II  | 0.00871585      | spSpec-51941-0290-356 | A8III | 0.00902903      |
| spSpec-51691-0342-097   | A3III | 0.00872780      | spSpec-51788-0355-448 | G6III | 0.00904219      |
| spSpec-52367-0332-164   | F5II  | 0.00873819      | spSpec-51699-0349-326 | K2III | 0.00907076      |
| spSpec-51613-0305-271   | G1V   | 0.00875424      | spSpec-51663-0307-210 | K4III | 0.00908781      |
| spSpec-51699-0349-565   | G9V   | 0.00875376      | spSpec-51691-0342-367 | A7I   | 0.00908858      |
| spSpec-51994-0309-123   | A1V   | 0.00874778      | spSpec-51990-0289-547 | A8V   | 0.00908971      |
| spSpec-52023-0287-433   | F0IV  | 0.00876422      | spSpec-51671-0299-583 | K3III | 0.00911149      |
| Spectral Type | Effective Temperature | Magnitude |
|---------------|-----------------------|-----------|
| B2III         | 0.00176967            |           |
| B7III         | 0.00877152            |           |
| F8III         | 0.00877881            |           |
| K3III         | 0.00881111            |           |
| A8III         | 0.00881502            |           |
| G6III         | 0.00883159            |           |
| K0I           | 0.00883868            |           |
| A1V           | 0.00886203            |           |
| B1I           | 0.00887404            |           |
| A1V           | 0.00888375            |           |
| A1V           | 0.00889065            |           |
| F5II          | 0.00889940            |           |
| F7V           | 0.00889691            |           |
| B7III         | 0.00892111            |           |
| A8V           | 0.00892875            |           |
| F5III         | 0.00895125            |           |
| A7I           | 0.00894767            |           |
| O6.5V         | 0.00894699            |           |
| A1V           | 0.00896340            |           |
| F4I           | 0.00897722            |           |
| G6III         | 0.00931654            |           |
| F8III         | 0.00937412            |           |
| F5II          | 0.00938892            |           |
| G6III         | 0.00939385            |           |
| G9V           | 0.00939862            |           |
| F4I           | 0.00940756            |           |
| A7I           | 0.00942339            |           |
| A7I           | 0.00941785            |           |
| G9V           | 0.00941805            |           |
| A8III         | 0.00941925            |           |
| F5III         | 0.00942048            |           |
| F5II          | 0.00942475            |           |
| K4V           | 0.00942559            |           |
| M0V           | 0.00942849            |           |
| A8III         | 0.00942673            |           |
| F5I           | 0.00942757            |           |
| K4V           | 0.00942904            |           |
| A7I           | 0.00942947            |           |
| A8V           | 0.00942913            |           |
| M0V           | 0.00942987            |           |
| K2III         | 0.00943133            |           |
| B7III         | 0.00943197            |           |
| A3III         | 0.00947341            |           |
| B1I           | 0.00947388            |           |
| B2III         | 0.00947561            |           |
| A7I           | 0.00947836            |           |
| A2I           | 0.00947824            |           |
| B2III         | 0.00948280            |           |
| G9III         | 0.00948384            |           |
| Name                        | Type  | Temperature | Distance |
|-----------------------------|-------|-------------|----------|
| spSpec-51985-0295-597       | K4V   | 0.00945296  |          |
| spSpec-51690-0341-489       | B7III | 0.00946125  |          |
| spSpec-51665-0311-273       | K3III | 0.00947475  |          |
| spSpec-51908-0277-334       | A2I   | 0.00946732  |          |
| spSpec-51942-0301-455       | F5II  | 0.00948076  |          |
| spSpec-51943-0300-095       | A7I   | 0.00947718  |          |
| spSpec-51789-0352-017       | M0V   | 0.00948683  |          |
| spSpec-51999-0286-558       | A7I   | 0.00948725  |          |
| spSpec-51665-0311-359       | G9V   | 0.00950527  |          |
| spSpec-52000-0335-634       | G6III | 0.00952547  |          |
| spSpec-52017-0366-342       | A3III | 0.00953055  |          |
| spSpec-51614-0281-274       | F5III | 0.00953907  |          |
| spSpec-51942-0301-500       | A8III | 0.00953877  |          |
| spSpec-51637-0306-524       | F8III | 0.00957063  |          |
| spSpec-51692-0339-354       | G6III | 0.00959013  |          |
| spSpec-51789-0352-076       | F8III | 0.00961353  |          |
| spSpec-52367-0332-186       | K5I   | 0.00962119  |          |
| spSpec-51955-0298-576       | A8III | 0.00964298  |          |
| spSpec-51990-0310-636       | G5I   | 0.00965361  |          |
| spSpec-51999-0286-397       | A8III | 0.00965048  |          |
| spSpec-51658-0282-627       | A8V   | 0.00966382  |          |
| spSpec-51663-0307-356       | A8V   | 0.00967292  |          |
| spSpec-51955-0298-265       | A8III | 0.00966596  |          |
| spSpec-51613-0305-102       | F0IV  | 0.00969974  |          |
| spSpec-51780-0351-420       | K7III | 0.00969675  |          |
| spSpec-51692-0339-362       | G2IV  | 0.01017098  |          |
| spSpec-51613-0305-384       | A8III | 0.01017690  |          |
| spSpec-51662-0308-091       | A1V   | 0.01017988  |          |
| Spectra ID               | Type   | Parameter 1 | Spectra ID               | Type   | Parameter 1 |
|-------------------------|--------|-------------|-------------------------|--------|-------------|
| spSpec-51909-0270-008   | A6V    | 0.01017689  | spSpec-51688-0302-399   | G9V    | 0.01065141  |
| spSpec-51663-0307-595   | B7III  | 0.01018520  | spSpec-51691-0342-230   | G9V    | 0.01064801  |
| spSpec-51990-0289-387   | A8III  | 0.01018822  | spSpec-51691-0350-433   | G9V    | 0.01064529  |
| spSpec-51613-0305-473   | A8III  | 0.01022136  | spSpec-51913-0274-303   | B7III  | 0.01065079  |
| spSpec-51908-0277-010   | K4V    | 0.01022500  | spSpec-52375-0326-229   | B7III  | 0.01064998  |
| spSpec-51999-0286-555   | A8III  | 0.01021749  | spSpec-52367-0332-519   | A1V    | 0.01069593  |
| spSpec-51692-0343-336   | M1V    | 0.01025747  | spSpec-51941-0272-312   | A8V    | 0.01071330  |
| spSpec-51609-0292-342   | A7I    | 0.01026786  | spSpec-51994-0309-557   | A7I    | 0.01072002  |
| spSpec-51658-0282-277   | G9V    | 0.01027252  | spSpec-52370-0330-321   | F8III  | 0.01075000  |
| spSpec-51959-0283-192   | A8V    | 0.01029280  | spSpec-51703-0353-524   | G5I    | 0.01075771  |
| spSpec-51792-0354-153   | A7I    | 0.01030667  | spSpec-51943-0284-091   | G5I    | 0.01075885  |
| spSpec-52017-0366-310   | G2IV   | 0.01030766  | spSpec-51900-0278-033   | F8III  | 0.01079915  |
| spSpec-51663-0315-494   | M0V    | 0.01036151  | spSpec-51930-0285-133   | A8V    | 0.01080588  |
| spSpec-52017-0366-074   | G6III  | 0.01035500  | spSpec-51990-0310-617   | G9V    | 0.01083377  |
| spSpec-51985-0295-151   | M1V    | 0.01036949  | spSpec-51658-0282-276   | A3III  | 0.01084032  |
| spSpec-51630-0266-037   | A1V    | 0.01041020  | spSpec-51630-0266-364   | F8III  | 0.01084792  |
| spSpec-51630-0266-487   | A2I    | 0.01042153  | spSpec-51990-0340-556   | G6III  | 0.01085698  |
| spSpec-51792-0354-398   | G5I    | 0.01042892  | spSpec-51789-0352-432   | K4III  | 0.01087344  |
| spSpec-51959-0283-145   | B7III  | 0.01043401  | spSpec-51990-0289-025   | B7III  | 0.01087648  |
| spSpec-51999-0286-045   | A1V    | 0.01043113  | spSpec-51955-0298-342   | G2IV   | 0.01089058  |
| spSpec-51663-0307-284   | A8III  | 0.01045990  | spSpec-51989-0363-228   | A1V    | 0.01090938  |
| spSpec-51994-0293-436   | A3III  | 0.01047780  | spSpec-51788-0355-79    | K5I    | 0.01091980  |
| spSpec-52375-0326-241   | A3III  | 0.01048439  | spSpec-51994-0309-335   | F5II   | 0.01091622  |
| spSpec-51788-0355-006   | F7V    | 0.01049198  | spSpec-51699-0349-322   | F5III  | 0.01095040  |
| spSpec-51908-0277-303   | G9V    | 0.01050363  | spSpec-52370-0330-375   | A8III  | 0.01096576  |
| spSpec-52023-0287-554   | F0IV   | 0.01050437  | spSpec-51691-0350-320   | F8III  | 0.01101441  |
| spSpec-51703-0353-009   | F0IV   | 0.01052156  | spSpec-51928-0291-425   | A7I    | 0.01104391  |
| spSpec-52017-0366-144   | F5II   | 0.01052666  | spSpec-52313-0333-531   | G9V    | 0.01104320  |
| spectrum | identifier | classification | spectral_index | spectrum | identifier | classification | spectral_index |
|----------|------------|----------------|----------------|----------|------------|----------------|----------------|
| spSpec-51613-0305-343 | F5I | 0.01053515 | spSpec-51789-0352-272 | F5I | 0.01106179 |
| spSpec-51994-0309-070 | A8III | 0.01053994 | spSpec-51792-0354-450 | F8III | 0.01105771 |
| spSpec-51609-0292-463 | G9V | 0.01107769 | spSpec-51943-0300-046 | A7I | 0.01165550 |
| spSpec-51816-0360-001 | G6III | 0.01107791 | spSpec-51990-0289-437 | A3III | 0.01167869 |
| spSpec-51692-0339-193 | F5II | 0.01111921 | spSpec-51613-0305-298 | G9V | 0.01173072 |
| spSpec-52375-0326-328 | F5II | 0.01113364 | spSpec-51994-0309-436 | A8III | 0.01174398 |
| spSpec-51957-0273-103 | A3III | 0.01115419 | spSpec-52375-0326-234 | A1V | 0.01173797 |
| spSpec-51663-0307-304 | A7I | 0.01119823 | spSpec-52023-0287-549 | A8V | 0.01183635 |
| spSpec-51816-0360-286 | G9V | 0.01120150 | spSpec-51663-0307-310 | A3III | 0.01185300 |
| spSpec-52017-0366-090 | B2III | 0.01120787 | spSpec-51910-0275-126 | A1V | 0.01186620 |
| spSpec-51637-0306-007 | A8III | 0.01122459 | spSpec-51671-0299-314 | A9V | 0.01189420 |
| spSpec-52017-0366-152 | B7I | 0.01125342 | spSpec-51942-0301-120 | A8V | 0.01192270 |
| spSpec-51990-0310-172 | A8V | 0.01127370 | spSpec-51816-0360-165 | B7III | 0.01193785 |
| spSpec-51999-0336-404 | B9III | 0.01128439 | spSpec-51999-0286-575 | A8III | 0.0119421 |
| spSpec-51955-0298-275 | B2III | 0.01128886 | spSpec-51942-0301-231 | A8III | 0.01201991 |
| spSpec-51821-0359-485 | M1V | 0.01129730 | spSpec-51780-0351-623 | G5I | 0.01202571 |
| spSpec-51612-0280-101 | A8III | 0.01134571 | spSpec-51821-0359-053 | B4V | 0.01202747 |
| spSpec-51614-0281-148 | F5II | 0.01137055 | spSpec-51663-0307-305 | G9V | 0.01206906 |
| spSpec-51818-0358-556 | A1V | 0.01137286 | spSpec-52370-0330-405 | A8V | 0.01207268 |
| spSpec-52375-0326-557 | O6.5III | 0.01137241 | spSpec-51909-0276-564 | G9V | 0.01208131 |
| spSpec-51613-0305-192 | F4I | 0.01137626 | spSpec-51614-0281-538 | A1I | 0.01210263 |
| spSpec-52313-0333-354 | F8III | 0.01138606 | spSpec-51788-0355-458 | G6III | 0.01214311 |
| spSpec-51999-0286-599 | F5II | 0.01144463 | spSpec-51909-0276-044 | A8III | 0.01215440 |
| spSpec-51999-0286-308 | A3III | 0.01144860 | spSpec-52000-0288-064 | M3III | 0.01214894 |
| spSpec-51957-0304-122 | K4V | 0.01148566 | spSpec-52000-0335-272 | A1I | 0.01216322 |
| spSpec-51613-0305-268 | G9V | 0.01151473 | spSpec-51663-0307-151 | A8III | 0.01219993 |
| spSpec-51692-0343-369 | A3III | 0.01151510 | spSpec-51630-0266-471 | K4III | 0.01224670 |
| spSpec-51955-0298-051 | B2III | 0.01152901 | spSpec-52000-0288-097 | M1V | 0.01224819 |
| Spectroscopic Identifier | Temperature Class | Spectroscopic Identifier | Temperature Class |
|--------------------------|-------------------|--------------------------|-------------------|
| spSpec-51955-0298-392    | A7I               | spSpec-51994-0293-355    | B7III             |
| spSpec-51990-0289-459    | A8III             | spSpec-51637-0306-511    | A8V               |
| spSpec-51671-0299-137    | A8III             | spSpec-51909-0270-020    | F5II              |
| spSpec-51818-0358-563    | K4V               | spSpec-51942-0301-530    | F8III             |
| spSpec-51990-0340-263    | A8V               | spSpec-51821-0359-047    | K4III             |
| spSpec-51990-0340-405    | A8III             | spSpec-51788-0355-074    | A8V               |
| spSpec-51609-0292-543    | B7III             | spSpec-51999-0336-527    | A8V               |
| spSpec-51663-0307-008    | B2III             | spSpec-51694-0338-302    | A8V               |
| spSpec-51908-0277-095    | K7III             | spSpec-51990-0289-242    | A7I               |
| spSpec-51955-0298-315    | A8III             | spSpec-51994-0293-406    | A7I               |
| spSpec-51942-0301-623    | B7III             | spSpec-52313-0333-606    | G6III             |
| spSpec-52000-0288-321    | A1V               | spSpec-51943-0300-162    | G6III             |
| spSpec-51959-0283-121    | F8III             | spSpec-52294-0327-598    | G9V               |
| spSpec-52375-0326-223    | B7III             | spSpec-51690-0341-626    | G5I               |
| spSpec-51662-0308-052    | B7III             | spSpec-51780-0351-112    | B7III             |
| spSpec-52367-0332-364    | K4V               | spSpec-52375-0326-378    | M0V               |
| spSpec-51673-0313-481    | G9V               | spSpec-52017-0366-472    | M1V               |
| spSpec-51994-0293-307    | G6III             | spSpec-51994-0293-072    | A7I               |
| spSpec-51637-0306-004    | A3I               | spSpec-51818-0358-599    | A1V               |
| spSpec-52375-0326-067    | A8V               | spSpec-51688-0302-223    | G9V               |
| spSpec-51614-0281-064    | F5II              | spSpec-51821-0359-549    | A3III             |
| spSpec-51997-0337-579    | F0IV              | spSpec-51883-0271-380    | A8III             |
| spSpec-51609-0292-134    | G2IV              | spSpec-52375-0326-611    | K4V               |
| spSpec-51691-0342-312    | A8III             | spSpec-52313-0333-366    | B7III             |
| spSpec-51658-0282-383    | F8III             | spSpec-51614-0281-417    | G9V               |
| spSpec-51999-0336-232    | A1I               | spSpec-51673-0313-021    | K4III             |
| spSpec-52368-0331-335    | B2III             | spSpec-51883-0271-129    | M0V               |
| spSpec-51658-0282-352    | A8V               | spSpec-51910-0275-039    | F5III             |

Column 1: Spectroscopic Identifier
Column 2: Temperature Class
Column 3: Spectroscopic Identifier
Column 4: Temperature Class
| Object ID          | Type | Date   | Duration | Temperature | Distance | R | Distance |
|-------------------|------|--------|----------|-------------|----------|---|----------|
| spSpec-51699-0349-351 | B1I  | 0.01283893 |          | G9V         | 0.01386185 |
| spSpec-51615-0303-622   | G8II | 0.01285982 |          | G5I         | 0.01438874 |
| spSpec-51909-0276-318   | B7III| 0.01292134 |          | G9V         | 0.01390018 |
| spSpec-51990-0340-443   | A1I  | 0.01291569 |          | B7III       | 0.01393943 |
| spSpec-52056-0329-615   | A2I  | 0.01293953 |          | A7I         | 0.01393838 |
| spSpec-51943-0300-169   | A7I  | 0.01307170 |          | A1I         | 0.01397751 |
| spSpec-51633-0268-057   | F8II | 0.01308758 |          | A7I         | 0.01397751 |
| spSpec-51691-0350-007   | A1V  | 0.01309270 |          | A7I         | 0.01397751 |
| spSpec-51999-0286-400   | A8III| 0.01310323 |          | A7I         | 0.01397751 |
| spSpec-52023-0287-211   | G9V  | 0.01310420 |          | A7I         | 0.01397751 |
| spSpec-51818-0358-104   | A1V  | 0.01317507 |          | A7I         | 0.01397751 |
| spSpec-51663-0326-604   | G9V  | 0.01321950 |          | A7I         | 0.01397751 |
| spSpec-51792-0354-075   | A1V  | 0.01424587 |          | A7I         | 0.01397751 |
| spSpec-51986-0294-211   | A7I  | 0.01429457 |          | A7I         | 0.01397751 |
| spSpec-51615-0303-543   | M0V  | 0.01430273 |          | A7I         | 0.01397751 |
| spSpec-51941-0272-280   | K7III| 0.01433735 |          | A7I         | 0.01397751 |
| spSpec-52294-0327-336   | G9V  | 0.01435127 |          | A7I         | 0.01397751 |
| spSpec-51816-0360-123   | B7III| 0.01435592 |          | A7I         | 0.01397751 |
| spSpec-51665-0311-030   | G9V  | 0.01438874 |          | A7I         | 0.01397751 |
| spSpec-51690-0341-294   | A1V  | 0.01445363 |          | A7I         | 0.01397751 |
| spSpec-51673-0313-543   | A1V  | 0.01448886 |          | A7I         | 0.01397751 |
| spSpec-51662-0308-459   | G9V  | 0.01449820 |          | A7I         | 0.01397751 |
| spSpec-51789-0352-083   | F5II | 0.01450422 |          | A7I         | 0.01397751 |
| spSpec-51900-0278-621   | A7I  | 0.01449554 |          | A7I         | 0.01397751 |
| spSpec-51957-0304-464   | G6III| 0.01450232 |          | A7I         | 0.01397751 |
| Object          | Spectral Class | R      | Object          | Spectral Class | R      |
|-----------------|----------------|--------|-----------------|----------------|--------|
| spSpec-51613-0305-034 | A8V            | 0.01451348 | spSpec-51999-0336-286 | A8III          | 0.01559438 |
| spSpec-52375-0326-189 | A1V            | 0.01452967 | spSpec-51818-0358-052 | B7III          | 0.01560339 |
| spSpec-51694-0338-549 | B2III          | 0.01455010 | spSpec-51658-0282-345 | M5V            | 0.01560797 |
| spSpec-51993-0334-386 | A8III          | 0.01456371 | spSpec-51662-0308-568 | B7III          | 0.01561544 |
| spSpec-51789-0352-053 | A8III          | 0.01458129 | spSpec-51690-0341-331 | B7III          | 0.01562301 |
| spSpec-51662-0308-320 | M5V            | 0.01469228 | spSpec-51941-0290-265 | M5V            | 0.01565917 |
| spSpec-51609-0292-532 | B7III          | 0.01470208 | spSpec-51703-0353-116 | A1V            | 0.01566987 |
| spSpec-51994-0309-195 | B4V            | 0.01471097 | spSpec-51994-0309-388 | M0V            | 0.01568206 |
| spSpec-51615-0303-637 | K0III          | 0.01473544 | spSpec-51994-0309-278 | K7III          | 0.01570437 |
| spSpec-51942-0301-224 | B7III          | 0.01478836 | spSpec-51613-0305-210 | A3III          | 0.01574409 |
| spSpec-51909-0276-206 | G9V            | 0.01480521 | spSpec-51630-0266-344 | G5I            | 0.01574592 |
| spSpec-51997-0337-229 | B7III          | 0.01491903 | spSpec-51990-0310-331 | A8V            | 0.01578070 |
| spSpec-51999-0336-176 | B7III          | 0.01492627 | spSpec-51955-0298-434 | G5I            | 0.01581540 |
| spSpec-51957-0273-491 | B7III          | 0.01501701 | spSpec-51990-0310-416 | B7III          | 0.01583028 |
| spSpec-51908-0277-350 | M1V            | 0.01506646 | spSpec-51989-0363-048 | B7I            | 0.01585320 |
| spSpec-51941-0272-141 | F5III          | 0.01506947 | spSpec-51662-0308-482 | A7I            | 0.01589759 |
| spSpec-51818-0358-330 | F5II           | 0.01507949 | spSpec-52368-0331-133 | M1V            | 0.01589567 |
| spSpec-51692-0339-458 | M5V            | 0.01593895 | spSpec-51928-0291-464 | K7III          | 0.01699696 |
| spSpec-51614-0281-133 | M1II           | 0.01599563 | spSpec-52370-0330-324 | B2III          | 0.01700650 |
| spSpec-51959-0283-318 | A7I            | 0.01600221 | spSpec-51994-0309-067 | M0V            | 0.01708330 |
| spSpec-51692-0343-398 | K2III          | 0.01606938 | spSpec-51959-0283-457 | G9V            | 0.01711925 |
| spSpec-51816-0360-392 | A7I            | 0.01610613 | spSpec-51818-0358-405 | B7III          | 0.01718541 |
| spSpec-51985-0295-020 | F8V            | 0.01613177 | spSpec-51957-0304-367 | M0V            | 0.01721658 |
| spSpec-51662-0308-578 | M5V            | 0.01615991 | spSpec-51818-0358-386 | A7I            | 0.01726918 |
| spSpec-51959-0297-235 | F8III          | 0.01619395 | spSpec-51662-0308-410 | G9V            | 0.01728591 |
| spSpec-51662-0308-147 | A8V            | 0.01625030 | spSpec-52000-0335-607 | B4V            | 0.01728745 |
| spSpec-52313-0333-079 | A1V            | 0.01626113 | spSpec-51955-0298-438 | A7I            | 0.01731821 |
| spSpec-51909-0276-298 | B2III          | 0.01632822 | spSpec-51613-0305-579 | A8V            | 0.01733870 |
| Object         | Type   | RA       | Dec      | Distance | Luminosity | Mass     | Temperature |
|---------------|--------|----------|----------|----------|------------|----------|-------------|
| spSpec-51789-0352-628 | M0V    | 0.01633673 |          |          |            |          |             |
| spSpec-51999-0286-075  | A7I    | 0.01635725 |          |          |            |          |             |
| spSpec-51792-0354-604  | A8V    | 0.01640581 |          |          |            |          |             |
| spSpec-51942-0301-161  | A8V    | 0.01641253 |          |          |            |          |             |
| spSpec-51671-0299-636  | A3III  | 0.01644492 |          |          |            |          |             |
| spSpec-51788-0355-174  | F8V    | 0.01647899 |          |          |            |          |             |
| spSpec-51999-0286-512  | A7I    | 0.01649978 |          |          |            |          |             |
| spSpec-51614-0281-470  | A3III  | 0.01652982 |          |          |            |          |             |
| spSpec-51788-0355-002  | G9V    | 0.01653495 |          |          |            |          |             |
| spSpec-51990-0310-315  | A7I    | 0.01653065 |          |          |            |          |             |
| spSpec-51792-0354-624  | B2III  | 0.01676285 |          |          |            |          |             |
| spSpec-51993-0334-596  | A8III  | 0.01676167 |          |          |            |          |             |
| spSpec-52375-0326-475  | B2III  | 0.01675515 |          |          |            |          |             |
| spSpec-51883-0271-212  | A8V    | 0.01651920 |          |          |            |          |             |
| spSpec-51910-0269-285  | A7I    | 0.01681987 |          |          |            |          |             |
| spSpec-51943-0300-068  | A7I    | 0.01683471 |          |          |            |          |             |
| spSpec-51663-0315-540  | K6II   | 0.01685844 |          |          |            |          |             |
| spSpec-51662-0308-541  | F5II   | 0.01687640 |          |          |            |          |             |
| spSpec-51943-0300-242  | B4V    | 0.01686668 |          |          |            |          |             |
| spSpec-51990-0289-299  | A3III  | 0.01692059 |          |          |            |          |             |
| spSpec-52000-0288-154  | F5II   | 0.01698200 |          |          |            |          |             |
| spSpec-51665-0311-403  | F5II   | 0.01700254 |          |          |            |          |             |
| spSpec-51985-0295-198  | A8V    | 0.01832734 |          |          |            |          |             |
| spSpec-51609-0292-136  | B4V    | 0.01828292 |          |          |            |          |             |
| spSpec-52017-0366-292  | K5I    | 0.01827964 |          |          |            |          |             |
| spSpec-51990-0289-322  | O6.5V  | 0.01832633 |          |          |            |          |             |
| spSpec-51989-0363-066  | A8III  | 0.01839749 |          |          |            |          |             |
| spSpec-51688-0302-193  | A7I    | 0.01842621 |          |          |            |          |             |
|                  | Type  | Value  |                  | Type  | Value  |
|------------------|-------|--------|------------------|-------|--------|
| spSpec-51658-0282-370 | M4III | 0.01844951 | spSpec-52368-0331-116 | M0V  | 0.01988862 |
| spSpec-51614-0281-015  | A8III | 0.01855737 | spSpec-51957-0304-260  | M0V  | 0.01992459 |
| spSpec-51614-0281-254  | K7III | 0.01856008 | spSpec-51612-0280-154  | A3III | 0.01994013 |
| spSpec-51821-0359-079  | M5V   | 0.01864716 | spSpec-51692-0339-216  | G5I   | 0.01999108 |
| spSpec-51957-0273-141  | A8III | 0.01864975 | spSpec-52375-0326-065  | B7III | 0.02004747 |
| spSpec-51609-0292-315  | B2III | 0.01868577 | spSpec-51613-0305-266  | A1I   | 0.02006908 |
| spSpec-51788-0355-436  | K7III | 0.01885543 | spSpec-51818-0358-545  | B7III | 0.02007624 |
| spSpec-51609-0292-291  | F4I   | 0.01887350 | spSpec-51990-0340-203  | A3III | 0.02007577 |
| spSpec-51780-0351-632  | G5I   | 0.01888141 | spSpec-51909-0270-332  | M3II  | 0.02009009 |
| spSpec-51633-0268-613  | M3III | 0.01894084 | spSpec-51997-0337-026  | M3III | 0.02009214 |
| spSpec-51662-0308-148  | A7I   | 0.01893633 | spSpec-51943-0300-314  | F8III | 0.02010071 |
| spSpec-51816-0360-176  | F8III | 0.01894450 | spSpec-51788-0355-016  | M3III | 0.02015176 |
| spSpec-51615-0303-345  | A8V   | 0.01895349 | spSpec-51690-0341-310  | F5II  | 0.02016589 |
| spSpec-52017-0366-293  | G5I   | 0.01894512 | spSpec-51688-0302-403  | A8V   | 0.02020004 |
| spSpec-51993-0334-237  | F5II  | 0.01895646 | spSpec-51792-0354-054  | B2III | 0.02024604 |
| spSpec-51663-0307-313  | A3III | 0.01901494 | spSpec-51910-0275-042  | F5II  | 0.02025374 |
| spSpec-51690-0341-072  | A8V   | 0.01905755 | spSpec-51608-0267-375  | M3II  | 0.02032853 |
| spSpec-52375-0326-565  | B7III | 0.01909759 | spSpec-51942-0301-308  | M1II  | 0.02038125 |
| spSpec-51691-0342-343  | A3III | 0.01911003 | spSpec-51908-0277-271  | B7III | 0.02043806 |
| spSpec-52368-0331-204  | M0V   | 0.01920144 | spSpec-52370-0330-401  | G5I   | 0.02045100 |
| spSpec-51671-0299-328  | A8III | 0.01930625 | spSpec-51662-0308-163  | B2III | 0.02055328 |
| spSpec-51789-0352-044  | A7I   | 0.01932068 | spSpec-51792-0354-144  | B2III | 0.02076526 |
| spSpec-52294-0327-327  | F5II  | 0.01939398 | spSpec-51990-0310-014  | A3III | 0.02085970 |
| spSpec-51989-0363-355  | A7I   | 0.01939731 | spSpec-52023-0287-359  | A1I   | 0.02088347 |
| spSpec-51613-0305-318  | A9V   | 0.01941323 | spSpec-52294-0327-373  | B4V   | 0.02097173 |
| spSpec-51816-0360-298  | M4III | 0.01945812 | spSpec-51999-0286-293  | B7III | 0.02098563 |
| spSpec-51612-0280-507  | B2III | 0.01947863 | spSpec-51959-0297-067  | A1I   | 0.02102591 |
| spSpec-51658-0282-219  | M5V   | 0.02106005 | spSpec-51910-0275-308  | M3II  | 0.02289378 |
| Object ID     | Type  | RA   | Decl  | Magnitude | Spectral Class | Error   |
|---------------|-------|------|-------|-----------|----------------|---------|
| spSpec-51694-0338-122 | B4V | 0.02116281 | | | | |
| spSpec-51671-0299-261 | F8III | 0.02125821 | | | | |
| spSpec-51955-0298-106 | A7I | 0.02126733 | | | | |
| spSpec-51663-0307-225 | K4V | 0.02130571 | | | | |
| spSpec-51816-0360-174 | B2III | 0.02134634 | | | | |
| spSpec-51942-0301-137 | M5V | 0.02137654 | | | | |
| spSpec-51821-0359-146 | B4V | 0.02147479 | | | | |
| spSpec-51930-0285-067 | M3II | 0.02150422 | | | | |
| spSpec-51930-0285-308 | M4III | 0.02151196 | | | | |
| spSpec-51671-0299-244 | M3II | 0.02157466 | | | | |
| spSpec-51673-0313-088 | M5V | 0.02158875 | | | | |
| spSpec-51957-0304-531 | A1I | 0.02159232 | | | | |
| spSpec-51990-0340-290 | A8V | 0.02168368 | | | | |
| spSpec-51821-0359-437 | B7III | 0.02173727 | | | | |
| spSpec-51994-0309-060 | A7I | 0.02176826 | | | | |
| spSpec-51614-0281-284 | M3III | 0.02180137 | | | | |
| spSpec-51788-0355-527 | B1I | 0.02186387 | | | | |
| spSpec-52023-0287-478 | A7I | 0.02192719 | | | | |
| spSpec-51663-0307-406 | B2III | 0.02203348 | | | | |
| spSpec-51662-0308-434 | B4V | 0.02207363 | | | | |
| spSpec-51663-0307-009 | M0V | 0.02207117 | | | | |
| spSpec-51941-0272-162 | A8V | 0.02210911 | | | | |
| spSpec-51957-0304-067 | B4V | 0.02226783 | | | | |
| spSpec-51994-0293-284 | B4V | 0.02232399 | | | | |
| spSpec-51816-0360-318 | M5V | 0.02232730 | | | | |
| spSpec-52367-0332-521 | B7III | 0.02235933 | | | | |
| spSpec-51821-0359-386 | A3III | 0.02242425 | | | | |
| spSpec-51957-0304-123 | M1V | 0.02241568 | | | | |
| Object          | Type  | Distance | Object          | Type  | Distance |
|-----------------|-------|----------|-----------------|-------|----------|
| spSpec-51816-0360-166 | B4V   | 0.02257554 | spSpec-51792-0354-474 | B4V   | 0.02493827 |
| spSpec-51816-0360-108  | B7III | 0.02286012 | spSpec-51999-0336-131 | A6V   | 0.02518136 |
| spSpec-52368-0331-365  | B2III | 0.02288087 | spSpec-51789-0352-540 | B2III | 0.02519499 |
| spSpec-51694-0338-622  | B4V   | 0.02289281 | spSpec-51663-0307-604 | M3II  | 0.02530438 |
| spSpec-51818-0358-141  | B7III | 0.02530161 | spSpec-51633-0268-528 | M4III | 0.02998258 |
| spSpec-52375-0326-438  | B2III | 0.02535852 | spSpec-51692-0339-399 | O5V   | 0.03010960 |
| spSpec-51959-0297-556  | K7III | 0.02547875 | spSpec-51690-0341-300 | O5V   | 0.03012030 |
| spSpec-52023-0287-195  | B2III | 0.02605294 | spSpec-51999-0336-205 | F8III | 0.03018803 |
| spSpec-51818-0358-120  | M3III | 0.02609679 | spSpec-51792-0354-041 | O5V   | 0.03025662 |
| spSpec-51943-0300-019  | G5I   | 0.02620040 | spSpec-51615-0303-623 | G9V   | 0.03038455 |
| spSpec-51614-0281-279  | M1V   | 0.02621822 | spSpec-51816-0360-336 | B7III | 0.03052054 |
| spSpec-51663-0307-129  | B2III | 0.02626234 | spSpec-51994-0309-088 | M3II  | 0.03052916 |
| spSpec-51957-0273-426  | B2III | 0.02628676 | spSpec-51614-0281-463 | F8III | 0.03109722 |
| spSpec-51930-0285-319  | M5V   | 0.02636083 | spSpec-51909-0270-084 | O5V   | 0.03109712 |
| spSpec-51994-0309-271  | K4V   | 0.02655856 | spSpec-51692-0339-412 | O5V   | 0.03119155 |
| spSpec-51658-0282-423  | B2III | 0.02656571 | spSpec-51999-0336-197 | O5V   | 0.03121996 |
| spSpec-51943-0284-041  | M3III | 0.02664389 | spSpec-52000-0335-251 | O5V   | 0.03124837 |
| spSpec-52294-0327-579  | M3III | 0.02666524 | spSpec-51691-0342-464 | O5V   | 0.03146454 |
| spSpec-51630-0266-032  | B2III | 0.02674562 | spSpec-51993-0334-494 | M3III | 0.03163095 |
| spSpec-51910-0275-165  | M4III | 0.02675483 | spSpec-51999-0286-527 | M5V   | 0.03187013 |
| spSpec-51609-0292-565  | F5II  | 0.02680897 | spSpec-51792-0354-639 | B7III | 0.03221311 |
| spSpec-51821-0359-496  | M5V   | 0.02710096 | spSpec-51821-0359-352 | O5V   | 0.03222914 |
| spSpec-51986-0294-232  | F5II  | 0.02711616 | spSpec-51694-0338-349 | B7III | 0.03238208 |
| spSpec-52367-0332-305  | B2III | 0.02713136 | spSpec-51665-0311-198 | M3III | 0.03262212 |
| spSpec-51990-0310-189  | B2III | 0.02755999 | spSpec-51658-0282-306 | O5V   | 0.03283388 |
| spSpec-52368-0331-338  | B2III | 0.02813653 | spSpec-51959-0283-401 | M3III | 0.03282988 |
| spSpec-52375-0326-051  | B2III | 0.02865213 | spSpec-51614-0281-075 | O5V   | 0.03297331 |
| spSpec-52017-0366-031  | B4V   | 0.02878073 | spSpec-52368-0331-101 | A8III | 0.03318032 |
| Source              | Type  | Value  |
|---------------------|-------|--------|
| spSpec-52375-0326-635 | B2III | 0.02880837 |
| spSpec-51821-0359-265  | M5V   | 0.02888153 |
| spSpec-51663-0307-316  | B4V   | 0.02893206 |
| spSpec-51942-0301-440  | M3III | 0.02925967 |
| spSpec-51943-0284-485  | K7III | 0.02929328 |
| spSpec-51955-0298-240  | M5V   | 0.02945336 |
| spSpec-51994-0309-455  | O5V   | 0.02947981 |
| spSpec-51821-0359-171  | B7III | 0.02988785 |
| spSpec-52000-0335-242  | O5V   | 0.02995017 |
| spSpec-51690-0341-408  | O5V   | 0.03475095 |
| spSpec-51990-0289-241  | O5V   | 0.03488126 |
| spSpec-51688-0302-317  | O5V   | 0.03493430 |
| spSpec-52294-0327-329  | O5V   | 0.03496382 |
| spSpec-51816-0360-046  | O5V   | 0.03503580 |
| spSpec-51691-0342-022  | O5V   | 0.03510309 |
| spSpec-51788-0355-586  | A7I   | 0.03509620 |
| spSpec-51941-0290-561  | O5V   | 0.03511775 |
| spSpec-52017-0366-201  | M5V   | 0.03526248 |
| spSpec-52370-0330-331  | O5V   | 0.03540005 |
| spSpec-51990-0289-579  | O5V   | 0.03545591 |
| spSpec-51658-0282-618  | O5V   | 0.03555045 |
| spSpec-51663-0307-371  | O5V   | 0.03587971 |
| spSpec-51608-0267-099  | O5V   | 0.03592876 |
| spSpec-51615-0303-008  | O5V   | 0.03594762 |
| spSpec-51694-0338-301  | O5V   | 0.03620639 |
| spSpec-51816-0360-218  | O5V   | 0.03621948 |
| spSpec-52017-0366-098  | O5V   | 0.03629701 |
| spSpec-51908-0277-525  | O5V   | 0.03631218 |
| spSpec-51883-0271-403 | M4III | 0.03636432 | spSpec-51658-0282-425 | O5V | 0.04234049 |
|------------------------|-------|------------|------------------------|-----|------------|
| spSpec-51609-0292-047  | O5V   | 0.03654308 | spSpec-51663-0307-351  | O5V | 0.04243075 |
| spSpec-51614-0281-548  | O5V   | 0.03655739 | spSpec-51990-0289-617  | O5V | 0.04251335 |
| spSpec-51792-0354-583  | O5V   | 0.03665217 | spSpec-51663-0307-401  | O5V | 0.04285813 |
| spSpec-51658-0282-278  | O5V   | 0.03668425 | spSpec-51792-0354-200  | O5V | 0.04303683 |
| spSpec-51663-0315-327  | M3II  | 0.03671099 | spSpec-51821-0359-626  | O5V | 0.04329296 |
| spSpec-51955-0298-059  | M3III | 0.03739393 | spSpec-51821-0359-569  | O5V | 0.04341120 |
| spSpec-51941-0290-028  | O5V   | 0.03752325 | spSpec-51943-0300-126  | M0V | 0.04359668 |
| spSpec-51633-0268-635  | O5V   | 0.03797748 | spSpec-51613-0305-374  | M5V | 0.04366568 |
| spSpec-51663-0307-354  | O5V   | 0.03811226 | spSpec-51614-0281-398  | O5V | 0.04395960 |
| spSpec-51955-0298-326  | B2III | 0.03827495 | spSpec-51821-0359-410  | O5V | 0.04403652 |
| spSpec-51816-0360-639  | O5V   | 0.03845387 | spSpec-51633-0268-565  | M5V | 0.04444016 |
| spSpec-51658-0282-381  | O5V   | 0.03852025 | spSpec-51792-0354-040  | O5V | 0.04445911 |
| spSpec-51999-0336-267  | O5V   | 0.03853373 | spSpec-51816-0360-146  | O5V | 0.04467375 |
| spSpec-51990-0289-269  | O5V   | 0.04513334 | spSpec-51658-0282-601  | O5V | 0.04919134 |
| spSpec-51690-0341-288  | O5V   | 0.04539021 | spSpec-51959-0297-574  | O5V | 0.04942399 |
| spSpec-51909-0270-424  | O5V   | 0.04551344 | spSpec-51615-0303-359  | O5V | 0.04954522 |
| spSpec-52056-0329-346  | O5V   | 0.04564186 | spSpec-51957-0304-627  | O5V | 0.05001093 |
| spSpec-51999-0286-103  | O5V   | 0.04564654 | spSpec-51816-0360-236  | O5V | 0.05081469 |
| spSpec-51990-0289-117  | O5V   | 0.04565748 | spSpec-51818-0358-001  | O5V | 0.05122112 |
| spSpec-51994-0309-345  | O5V   | 0.04565968 | spSpec-51816-0360-544  | O5V | 0.05144528 |
| spSpec-51900-0278-322  | M3II  | 0.04575669 | spSpec-51985-0295-022  | O5V | 0.05182818 |
| spSpec-51613-0305-321  | O5V   | 0.04589756 | spSpec-51658-0282-295  | O5V | 0.05195764 |
| spSpec-51662-0308-347  | O5V   | 0.04613363 | spSpec-51816-0360-185  | O5V | 0.05206346 |
| spSpec-52023-0287-319  | O5V   | 0.04630648 | spSpec-51615-0303-588  | O5V | 0.05261899 |
| spSpec-51692-0339-337  | O5V   | 0.04651977 | spSpec-52375-0326-308  | O5V | 0.05301595 |
| spSpec-51691-0342-303  | O5V   | 0.04654892 | spSpec-52000-0335-285  | O5V | 0.05305079 |
| spSpec-51994-0293-296  | O5V   | 0.04656829 | spSpec-51999-0336-485  | O5V | 0.05324887 |
| Source ID          | Spectral Type | Value   | Source ID          | Spectral Type | Value   |
|-------------------|---------------|---------|-------------------|---------------|---------|
| spSpec-52368-0331-044 | O5V           | 0.04663052 | spSpec-51614-0281-162 | B1I           | 0.05341474 |
| spSpec-51821-0359-358 | O5V           | 0.04664043 | spSpec-51615-0303-085 | O5V           | 0.05345354 |
| spSpec-52017-0366-066 | B4V           | 0.04664637 | spSpec-51608-0267-351 | O5V           | 0.05354404 |
| spSpec-51663-0315-091 | O5V           | 0.04696385 | spSpec-51941-0272-410 | O5V           | 0.05384100 |
| spSpec-52000-0335-338 | O5V           | 0.04705747 | spSpec-52023-0287-057 | O5V           | 0.05399431 |
| spSpec-51608-0267-326 | M4III         | 0.04721810 | spSpec-51792-0354-341 | O5V           | 0.05411268 |
| spSpec-51691-0342-189 | O5V           | 0.04736334 | spSpec-51994-0293-097 | O5V           | 0.05488032 |
| spSpec-51614-0281-219 | O5V           | 0.04761076 | spSpec-51985-0295-442 | O5V           | 0.05498627 |
| spSpec-51990-0289-584 | O5V           | 0.04790046 | spSpec-51792-0354-264 | O5V           | 0.05532137 |
| spSpec-51663-0307-217 | O5V           | 0.04807717 | spSpec-51614-0281-469 | O5V           | 0.05540207 |
| spSpec-51990-0289-014 | O5V           | 0.04818593 | spSpec-51613-0305-300 | O5V           | 0.05562381 |
| spSpec-51997-0337-049 | O5V           | 0.04832397 | spSpec-51909-0276-494 | O5V           | 0.05577709 |
| spSpec-51612-0280-242 | O5V           | 0.04841673 | spSpec-51999-0336-339 | O5V           | 0.05580454 |
| spSpec-51994-0293-336 | O5V           | 0.04875516 | spSpec-51955-0298-607 | O5V           | 0.05599297 |
| spSpec-51614-0281-266 | O5V           | 0.04877864 | spSpec-51630-0266-314 | O5V           | 0.05656245 |
| spSpec-52023-0287-420 | O5V           | 0.04894588 | spSpec-52313-0333-380 | O5V           | 0.05665224 |
| spSpec-51821-0359-520 | O5V           | 0.04895705 | spSpec-51699-0349-370 | O5V           | 0.05744990 |
| spSpec-51613-0305-091 | O5V           | 0.04908236 | spSpec-51689-0312-355 | O5V           | 0.05759675 |
| spSpec-51780-0351-554 | O5V           | 0.04910415 | spSpec-52017-0366-134 | O5V           | 0.05769525 |
| spSpec-51637-0306-172 | O5V           | 0.05831113 | spSpec-51658-0282-500 | O5V           | 0.06680747 |
| spSpec-51985-0295-497 | O5V           | 0.05848703 | spSpec-51658-0282-281 | O5V           | 0.06690897 |
| spSpec-51662-0308-172 | O5V           | 0.05857377 | spSpec-51694-0338-382 | O5V           | 0.06698074 |
| spSpec-51910-0275-299 | O5V           | 0.05939664 | spSpec-51821-0359-622 | O5V           | 0.06741293 |
| spSpec-51989-0363-050 | O5V           | 0.05951750 | spSpec-51910-0275-098 | O5V           | 0.06764714 |
| spSpec-51703-0353-607 | O5V           | 0.05964236 | spSpec-51957-0304-254 | O5V           | 0.06820062 |
| spSpec-51942-0301-434 | M5V           | 0.05975498 | spSpec-51900-0278-153 | O5V           | 0.06837802 |
| spSpec-51999-0336-189 | O5V           | 0.05980724 | spSpec-51999-0336-477 | O5V           | 0.06862890 |
| spSpec-51986-0294-220 | O5V           | 0.05984681 | spSpec-51662-0308-029 | O5V           | 0.06871105 |
| Catalog   | Type | Quality | Distance  |
|-----------|------|---------|-----------|
| spSpec-51689-0312-398 | O5V | 0.06024251 | spSpec-51608-0267-128 | O5V | 0.06902732 |
| spSpec-51662-0308-176 | O5V | 0.06026563 | spSpec-52017-0366-353 | O5V | 0.06903102 |
| spSpec-51789-0352-221 | M5V | 0.06074824 | spSpec-51990-0340-190 | O5V | 0.06922802 |
| spSpec-51816-0360-416 | O5V | 0.06083870 | spSpec-51985-0295-341 | O5V | 0.06930645 |
| spSpec-51999-0286-143 | O5V | 0.06099648 | spSpec-51690-0341-625 | O5V | 0.06937950 |
| spSpec-51985-0295-365 | M5V | 0.06110143 | spSpec-51614-0281-241 | O5V | 0.06967060 |
| spSpec-51633-0268-135 | O5V | 0.06116340 | spSpec-51788-0355-522 | O5V | 0.06972965 |
| spSpec-51818-0358-392 | O5V | 0.06123115 | spSpec-51994-0309-118 | O5V | 0.06976591 |
| spSpec-51999-0286-390 | O5V | 0.06155261 | spSpec-51957-0273-241 | O5V | 0.06981814 |
| spSpec-51913-0274-435 | O5V | 0.06175800 | spSpec-51780-0351-435 | O5V | 0.07004138 |
| spSpec-51999-0336-154 | O5V | 0.06189280 | spSpec-51613-0305-100 | O5V | 0.07026538 |
| spSpec-51957-0273-266 | O5V | 0.06202298 | spSpec-51692-0339-605 | O5V | 0.07086745 |
| spSpec-51663-0315-021 | O5V | 0.06262173 | spSpec-51792-0354-137 | O5V | 0.07134123 |
| spSpec-51989-0363-505 | O5V | 0.06291677 | spSpec-52017-0366-281 | O5V | 0.07163436 |
| spSpec-51792-0354-286 | O5V | 0.06313049 | spSpec-51658-0282-230 | O5V | 0.07205415 |
| spSpec-51780-0351-533 | O5V | 0.06313905 | spSpec-51990-0310-349 | O5V | 0.07212694 |
| spSpec-51816-0360-115 | O5V | 0.06458827 | spSpec-51691-0342-259 | O5V | 0.07341632 |
| spSpec-51957-0304-402 | O5V | 0.06479446 | spSpec-51703-0353-574 | O5V | 0.07376577 |
| spSpec-51792-0354-390 | O5V | 0.06511240 | spSpec-52313-0333-404 | O5V | 0.07380977 |
| spSpec-51941-0272-091 | O5V | 0.06514258 | spSpec-51999-0286-085 | O5V | 0.07391135 |
| spSpec-51612-0280-251 | O5V | 0.06622481 | spSpec-51692-0343-271 | O5V | 0.07426377 |
| spSpec-52294-0327-597 | O5V | 0.06634482 | spSpec-51909-0270-281 | O5V | 0.07431860 |
| spSpec-51997-0337-105 | O5V | 0.06646313 | spSpec-52367-0332-069 | O5V | 0.07464243 |
| spSpec-51999-0286-144 | O5V | 0.06654439 | spSpec-52282-0328-396 | O5V | 0.07495414 |
| spSpec-51662-0308-004 | O5V | 0.07496962 | spSpec-51999-0336-287 | O5V | 0.08588195 |
| spSpec-51792-0354-318 | O5V | 0.07552550 | spSpec-51694-0338-608 | O5V | 0.08606795 |
| spSpec-51816-0360-325 | O5V | 0.07557199 | spSpec-51663-0315-271 | O5V | 0.08620104 |
| spSpec-52017-0366-425 | O5V | 0.07592750 | spSpec-51957-0273-589 | O5V | 0.08663603 |
| Object                  | Type | Distance | Object                  | Type | Distance |
|------------------------|------|----------|------------------------|------|----------|
| spSpec-51637-0306-139  | O5V  | 0.07618267 | spSpec-51941-0290-296  | O5V  | 0.08745454 |
| spSpec-51688-0302-398  | O5V  | 0.07622712 | spSpec-51692-0343-388  | O5V  | 0.08745861 |
| spSpec-51821-0359-067  | O5V  | 0.07738644 | spSpec-52000-0288-118  | O5V  | 0.08745876 |
| spSpec-51691-0350-050  | O5V  | 0.07750255 | spSpec-51691-0342-316  | O5V  | 0.08754884 |
| spSpec-51614-0281-245  | O5V  | 0.07759052 | spSpec-51689-0312-528  | O5V  | 0.08782258 |
| spSpec-51941-0290-215  | O5V  | 0.07804281 | spSpec-51690-0341-064  | O5V  | 0.08805399 |
| spSpec-51692-0343-390  | O5V  | 0.07843685 | spSpec-51990-0310-202  | O5V  | 0.08822523 |
| spSpec-51994-0309-128  | O5V  | 0.07845660 | spSpec-51999-0336-321  | O5V  | 0.08829599 |
| spSpec-51614-0281-009  | O5V  | 0.07882337 | spSpec-51910-0269-062  | O5V  | 0.08838715 |
| spSpec-51633-0268-507  | O5V  | 0.07978938 | spSpec-51690-0341-183  | O5V  | 0.08885140 |
| spSpec-51699-0349-112  | O5V  | 0.07997284 | spSpec-51633-0368-295  | O5V  | 0.08956617 |
| spSpec-52056-0329-377  | O5V  | 0.08002966 | spSpec-51688-0302-295  | O5V  | 0.08962266 |
| spSpec-51816-0360-610  | O5V  | 0.08003859 | spSpec-51957-0273-320  | O5V  | 0.08979667 |
| spSpec-51658-0282-481  | O5V  | 0.08020979 | spSpec-51788-0355-284  | O5V  | 0.09031356 |
| spSpec-51788-0355-081  | O5V  | 0.08026077 | spSpec-51999-0336-639  | A7I  | 0.09093711 |
| spSpec-51984-0296-075  | O5V  | 0.08050045 | spSpec-51699-0349-302  | O5V  | 0.09098983 |
| spSpec-51690-0341-283  | O5V  | 0.08112997 | spSpec-51994-0293-095  | O5V  | 0.09138184 |
| spSpec-51614-0281-128  | O5V  | 0.08145733 | spSpec-51699-0349-575  | O5V  | 0.09142150 |
| spSpec-51994-0309-013  | O5V  | 0.08192779 | spSpec-51689-0312-273  | O5V  | 0.09160594 |
| spSpec-52370-0330-409  | O5V  | 0.08196588 | spSpec-51630-0266-187  | O5V  | 0.09195156 |
| spSpec-51691-0342-198  | M4III| 0.08217083 | spSpec-51989-0363-599  | O5V  | 0.09204373 |
| spSpec-51997-0337-331  | O5V  | 0.08244546 | spSpec-51999-0336-196  | O5V  | 0.09261169 |
| spSpec-51818-0358-103  | O5V  | 0.08265823 | spSpec-51780-0351-003  | O5V  | 0.09265439 |
| spSpec-51984-0279-132  | O5V  | 0.08390061 | spSpec-51994-0293-374  | O5V  | 0.09281139 |
| spSpec-51821-0359-453  | O5V  | 0.08457788 | spSpec-51941-0272-556  | O5V  | 0.09295236 |
| spSpec-51691-0342-255  | O5V  | 0.08541492 | spSpec-51633-0268-553  | O5V  | 0.09331331 |
| spSpec-51910-0275-062  | O5V  | 0.08547992 | spSpec-51909-0270-610  | O5V  | 0.09416683 |
| spSpec-52375-0326-324  | O5V  | 0.08559213 | spSpec-51792-0354-620  | O5V  | 0.09423550 |
| Object            | Type | Value1  | Object            | Type | Value2  |
|-------------------|------|---------|-------------------|------|---------|
| spSpec-51816-0360-368 | O5V  | 0.08568314 | spSpec-52282-0328-482 | O5V  | 0.09473468 |
| spSpec-52370-0330-620 | O5V  | 0.09487813 | spSpec-51613-0305-114 | O5V  | 0.10480923 |
| spSpec-51993-0334-421 | O5V  | 0.09532806 | spSpec-51990-0340-196 | O5V  | 0.10608395 |
| spSpec-51818-0358-632 | O5V  | 0.09542229 | spSpec-51691-0342-117 | O5V  | 0.10633688 |
| spSpec-51612-0280-031 | O5V  | 0.09638203 | spSpec-51699-0349-107 | O5V  | 0.10643267 |
| spSpec-51993-0334-478 | O5V  | 0.09639701 | spSpec-51658-0282-011 | O5V  | 0.10689693 |
| spSpec-51671-0299-207 | O5V  | 0.09776776 | spSpec-51997-0337-631 | O5V  | 0.10731822 |
| spSpec-51658-0282-206 | O5V  | 0.09803069 | spSpec-51955-0298-492 | O5V  | 0.10864473 |
| spSpec-51910-0269-088 | O5V  | 0.09906992 | spSpec-51959-0297-547 | O5V  | 0.10901479 |
| spSpec-51612-0280-561 | O5V  | 0.09916265 | spSpec-51989-0363-311 | O5V  | 0.10900687 |
| spSpec-52017-0366-313 | O5V  | 0.09931983 | spSpec-51955-0298-344 | O5V  | 0.10942493 |
| spSpec-51663-0315-561 | O5V  | 0.09933145 | spSpec-51821-0359-389 | O5V  | 0.10970071 |
| spSpec-51993-0334-420 | O5V  | 0.09941081 | spSpec-51821-0359-515 | O5V  | 0.10971407 |
| spSpec-51789-0352-237 | O5V  | 0.09968826 | spSpec-51999-0336-466 | O5V  | 0.10981086 |
| spSpec-51699-0349-069 | O5V  | 0.09977585 | spSpec-51614-0281-096 | O5V  | 0.10998880 |
| spSpec-51703-0353-550 | O5V  | 0.09978416 | spSpec-51630-0266-043 | O5V  | 0.11019221 |
| spSpec-51943-0300-145 | O5V  | 0.09984445 | spSpec-51821-0359-301 | O5V  | 0.11034850 |
| spSpec-51941-0272-043 | O5V  | 0.09999893 | spSpec-51689-0312-094 | O5V  | 0.11069436 |
| spSpec-51816-0360-499 | O5V  | 0.10003837 | spSpec-52000-0335-106 | O5V  | 0.11071997 |
| spSpec-51957-0273-044 | O5V  | 0.10013999 | spSpec-52367-0332-374 | O5V  | 0.11087398 |
| spSpec-51673-0313-540 | O5V  | 0.10041650 | spSpec-51663-0307-257 | O5V  | 0.11090630 |
| spSpec-51959-0283-470 | O5V  | 0.10084259 | spSpec-52023-0287-582 | O5V  | 0.11093084 |
| spSpec-51928-0291-242 | O5V  | 0.10117087 | spSpec-51663-0307-423 | O5V  | 0.11104835 |
| spSpec-51612-0280-036 | O5V  | 0.10128153 | spSpec-52367-0332-076 | O5V  | 0.11227203 |
| spSpec-52000-0335-449 | O5V  | 0.10155976 | spSpec-52017-0366-374 | O5V  | 0.11228643 |
| spSpec-52023-0287-228 | O5V  | 0.10221947 | spSpec-51942-0301-030 | O5V  | 0.11240016 |
| spSpec-51821-0359-168 | O5V  | 0.10309979 | spSpec-51699-0349-547 | O5V  | 0.11267692 |
| spSpec-51999-0336-171 | G4V  | 0.10330136 | spSpec-51821-0359-414 | O5V  | 0.11269078 |
| Object ID            | Type   | SpT  | RA      | Dec     | Type   | RA      | Dec     |
|----------------------|--------|------|---------|---------|--------|---------|---------|
| spSpec-51909-0270-333| O5V    | 0.10331439 | spSpec-51613-0305-305 | M1I    | 0.11339217 |
| spSpec-51984-0296-486| O5V    | 0.10346949 | spSpec-52282-0328-631 | O5V    | 0.11362521 |
| spSpec-51792-0354-283| O5V    | 0.10378421 | spSpec-51999-0336-560 | O5V    | 0.11425967 |
| spSpec-52294-0327-599| O5V    | 0.10378789 | spSpec-51691-0350-292 | O5V    | 0.11452733 |
| spSpec-51614-0281-325| O5V    | 0.10441594 | spSpec-51789-0352-039 | O5V    | 0.11512911 |
| spSpec-51821-0359-251| O5V    | 0.10469283 | spSpec-51909-0276-455 | O5V    | 0.11539561 |
| spSpec-51692-0339-418| O5V    | 0.11547685 | spSpec-51691-0342-227 | O5V    | 0.13259467 |
| spSpec-51780-0351-514| O5V    | 0.11587270 | spSpec-51999-0336-048 | O5V    | 0.13263860 |
| spSpec-51989-0363-329| O5V    | 0.11606353 | spSpec-51999-0336-213 | O5V    | 0.13280070 |
| spSpec-51994-0309-418| O5V    | 0.11672524 | spSpec-52375-0326-601 | O5V    | 0.13280908 |
| spSpec-51615-0303-635| O5V    | 0.11676676 | spSpec-51789-0352-631 | O5V    | 0.13299525 |
| spSpec-51614-0281-462| O5V    | 0.11744115 | spSpec-51986-0294-263 | O5V    | 0.13426185 |
| spSpec-51614-0281-049| O5V    | 0.11786778 | spSpec-51941-0290-603 | O5V    | 0.13436559 |
| spSpec-51633-0268-052| O5V    | 0.11875977 | spSpec-51999-0336-366 | O5V    | 0.13444498 |
| spSpec-51663-0315-263| O5V    | 0.11903660 | spSpec-51985-0295-621 | O5V    | 0.13449133 |
| spSpec-51999-0286-489| O5V    | 0.11910947 | spSpec-51999-0336-051 | O5V    | 0.13478377 |
| spSpec-51673-0313-175| O5V    | 0.11946200 | spSpec-51662-0308-572 | O5V    | 0.13555980 |
| spSpec-51637-0306-216| O5V    | 0.12076145 | spSpec-51986-0294-092 | O5V    | 0.13600760 |
| spSpec-51663-0307-571| O5V    | 0.12192690 | spSpec-51663-0315-053 | O5V    | 0.13677748 |
| spSpec-51613-0305-277| O5V    | 0.12237898 | spSpec-51930-0285-576 | O5V    | 0.13763372 |
| spSpec-51788-0355-570| O5V    | 0.12240242 | spSpec-51699-0349-618 | O5V    | 0.13776721 |
| spSpec-51985-0295-177| O5V    | 0.12278709 | spSpec-51780-0351-613 | O5V    | 0.13838197 |
| spSpec-51999-0336-421| O5V    | 0.12433362 | spSpec-51789-0352-629 | O5V    | 0.13839085 |
| spSpec-52370-0330-526| O5V    | 0.12480981 | spSpec-51689-0312-561 | O5V    | 0.13875673 |
| spSpec-51614-0281-244| O5V    | 0.12518467 | spSpec-51957-0304-466 | O5V    | 0.13942622 |
| spSpec-51816-0360-205| O5V    | 0.12564196 | spSpec-51957-0304-151 | O5V    | 0.13959695 |
| spSpec-51692-0339-549| O5V    | 0.12614397 | spSpec-51999-0286-242 | O5V    | 0.14007146 |
| spSpec-51942-0301-272| O5V    | 0.12624224 | spSpec-51658-0282-209 | O5V    | 0.14017707 |
| File Name               | Type | Value 1 | File Name               | Type | Value 2 |
|------------------------|------|---------|------------------------|------|---------|
| spSpec-51658-0282-357  | O5V  | 0.12710505 | spSpec-51673-0313-304  | O5V  | 0.14024693 |
| spSpec-51614-0281-056  | O5V  | 0.12769367 | spSpec-51789-0352-357  | O5V  | 0.14055510 |
| spSpec-51985-0295-132  | O5V  | 0.12770230 | spSpec-51999-0336-452  | O5V  | 0.14061548 |
| spSpec-52056-0329-363  | O5V  | 0.12784590 | spSpec-51883-0271-189  | O5V  | 0.14081124 |
| spSpec-51957-0304-247  | O5V  | 0.12817779 | spSpec-52017-0366-159  | O5V  | 0.14146846 |
| spSpec-51999-0336-338  | B4V  | 0.12894998 | spSpec-51658-0282-217  | O5V  | 0.14169797 |
| spSpec-51788-0355-320  | O5V  | 0.12937377 | spSpec-51941-0272-171  | O5V  | 0.14252104 |
| spSpec-51613-0305-334  | O5V  | 0.13006403 | spSpec-51688-0302-028  | M5V  | 0.14278500 |
| spSpec-51999-0336-008  | O5V  | 0.13172069 | spSpec-51959-0297-105  | O5V  | 0.14281508 |
| spSpec-51780-0351-174  | O5V  | 0.13184120 | spSpec-51780-0351-581  | O5V  | 0.14317442 |
| spSpec-51689-0312-457  | O5V  | 0.13226628 | spSpec-52023-0287-568  | O5V  | 0.14343681 |
| spSpec-51999-0336-467  | F3V  | 0.14366697 | spSpec-51909-0276-517  | O5V  | 0.16523324 |
| spSpec-51999-0336-076  | O5V  | 0.14575296 | spSpec-51788-0355-108  | O5V  | 0.16783363 |
| spSpec-52294-0327-403  | O5V  | 0.14575270 | spSpec-51792-0354-266  | O5V  | 0.16824850 |
| spSpec-51671-0299-073  | O5V  | 0.14668883 | spSpec-51999-0336-010  | O5V  | 0.16906276 |
| spSpec-51994-0309-008  | O5V  | 0.14761433 | spSpec-51999-0286-374  | O5V  | 0.16932693 |
| spSpec-51993-0334-528  | O5V  | 0.14768968 | spSpec-51999-0336-337  | O5V  | 0.17025582 |
| spSpec-51989-0363-629  | O5V  | 0.14803699 | spSpec-51910-0269-539  | O5V  | 0.17097236 |
| spSpec-51909-0270-567  | O5V  | 0.14936802 | spSpec-52375-0326-336  | O5V  | 0.17108327 |
| spSpec-51816-0360-615  | O5V  | 0.15016405 | spSpec-51999-0336-100  | O5V  | 0.17199780 |
| spSpec-51665-0311-479  | O5V  | 0.15044232 | spSpec-51692-0339-010  | O5V  | 0.17390356 |
| spSpec-51883-0271-280  | O5V  | 0.15047724 | spSpec-51994-0293-421  | O5V  | 0.17398547 |
| spSpec-51630-0266-301  | O5V  | 0.15063164 | spSpec-51985-0295-334  | O5V  | 0.18152985 |
| spSpec-51663-0307-181  | O5V  | 0.15070431 | spSpec-51788-0355-594  | O5V  | 0.18404864 |
| spSpec-52023-0287-523  | O5V  | 0.15225276 | spSpec-51613-0305-296  | O5V  | 0.18505944 |
| spSpec-51818-0358-431  | O5V  | 0.15287552 | spSpec-52282-0328-393  | O5V  | 0.18528734 |
| spSpec-51703-0353-082  | O5V  | 0.15310483 | spSpec-51691-0350-262  | O5V  | 0.18657289 |
| spSpec-51910-0269-205  | O5V  | 0.15325646 | spSpec-51999-0336-044  | O5V  | 0.19286681 |
| Name           | Type | Value  |
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| spSpec-51789-0352-280 | O5V  | 0.15349877 |
| spSpec-51984-0279-583   | O5V  | 0.15404994 |
| spSpec-51792-0354-052   | O5V  | 0.15512049 |
| spSpec-51999-0336-569   | O5V  | 0.15606192 |
| spSpec-51792-0354-416   | O5V  | 0.15692723 |
| spSpec-51615-0303-291   | O5V  | 0.15703667 |
| spSpec-51994-0309-011   | O5V  | 0.15747861 |
| spSpec-51816-0360-083   | O5V  | 0.15786598 |
| spSpec-51930-0285-366   | O5V  | 0.15873812 |
| spSpec-51997-0337-431   | O5V  | 0.15977104 |
| spSpec-51997-0337-358   | O5V  | 0.16175783 |
| spSpec-51703-0353-537   | O5V  | 0.16288921 |
| spSpec-52282-0328-017   | O5V  | 0.20315602 |
| spSpec-51690-0341-255   | O5V  | 0.21046003 |
| spSpec-51997-0337-189   | O5V  | 0.21238433 |
| spSpec-51630-0266-173   | O5V  | 0.21309317 |
| spSpec-51997-0337-309   | O5V  | 0.21599949 |
| spSpec-51913-0274-270   | O5V  | 0.21843809 |
| spSpec-51985-0295-282   | O5V  | 0.23488683 |
| spSpec-51614-0281-640   | O5V  | 0.24427829 |
| spSpec-51986-0294-160   | O5V  | 0.25676993 |
| spSpec-51999-0336-394   | F5II | 0.27937964 |
| spSpec-51608-0267-270   | O5V  | 0.31572224 |
| spSpec-51999-0336-405   | B4V  | 0.82743958 |
Automated Classification of Sloan Digital Sky Survey (SDSS) Stellar Spectra using Artificial Neural Networks

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ABSTRACT

Automated techniques have been developed to automate the process of classification of objects or their analysis. The large datasets provided by upcoming spectroscopic surveys with dedicated telescopes urges scientists to use these automated techniques for analysis of such large datasets which are now available to the community. Sloan Digital Sky Survey (SDSS) is one of such surveys releasing massive datasets. We use Probabilistic Neural Network (PNN) for automatic classification of about 5000 SDSS spectra into 158 spectral type of a reference library ranging from O type to M type stars.

Subject headings: Probabilistic Neural Network, Spectra, Sloan Digital Sky Survey, Spectral classification
1. Introduction

Intelligent systems based on pattern recognition tools like Artificial Neural Networks (ANNs) are now been used in various fields in applications like time series based event predictions, object classifications, data compression etc. In the past decade ANNs have found applications in classification of spectra, star-galaxy etc which are typical Astronomical requirements where large data bases are now coming up. The Sloan Digital Sky Survey (York et al. 2000) is one of such publicly available source of data where the need of automatic classification of a large data set provides an ideal ground for ANNs. Previous studies involving spectral classification using ANNs include: Gulati et al. (1994, 1995), Von Hippel et al. (1994), Weaver et al. (1995), Singh et al. (1998, 2003), Gupta et al. (2004) and also automated analysis of stellar spectra by Allende Prieto, C. (2004). These pioneering efforts resulted in setting up the scene where ANNs have proven to be an established tool for classification of large set of stellar spectra.

We have used Probabilistic Neural Network (D. F. Specht 1990) in MATLAB programming to classify 4999 test spectra of the SDSS into a set of 158 training spectra from a reference spectral library (Jacoby et al. 1984). Probabilistic neural network is intrinsically a classifier with four layer network. Input layer is fully connected to the next layer that is the pattern layer. There is one pattern node for each training example in this layer. The next layer is a summation layer which sums the inputs from pattern units. The output layer with one neuron represents the maximum value in the summation layer. PNN uses a supervised training set to develop probability density functions within a pattern layer. As new pattern vectors are presented to the PNN for classification, they are serially propagated through the hidden layer by computing the dot product between the new pattern and each pattern stored in the hidden layer.

The result of classification of about 5000 SDSS stellar spectra is possibly a first attempt
on this data set, though ANNs are already used on SDSS data for finding Galaxy types (N. M. Ball et al. 2004), measuring photometric redshifts (Vanzella, E. et al. 2004) and separation of stars and galaxies (Qin, Dong-Mei et al. 2003).

The section 2 describes the SDSS spectral data set; section 3 and 4 describe the PNN tool which has been applied to the data set and the classification process details for this work and finally the sections 5 and 6 give the results and discussion.

2. SDSS spectral data set and reference set of spectra

Sloan Digital Sky Survey is the most ambitious astronomical survey project ever undertaken. The survey will map in detail one-quarter of the entire sky with five broad band filters, determining the positions and absolute brightness of more than 100 million celestial objects. A technical summary of the survey is given in York et al. (2000). The data release to the community so far consists of the June 2001 Early Data Release (Stoughton et al. 2002), the April 2003 Data Release One (Abazajian K. et al. 2003), the March 2004 Data Release Two (DR2) (Abazajian K. et al. 2004), the September 2004 Data Release Three (Abazajian K. et al. 2005), the June 2005 Data Release Four (J. Adelman-McCarthy et al. 2006), the June 2006 Data Release Five (J. Adelman-McCarthy et al. 2007a) and the June 2007 Data Release six (J. Adelman-McCarthy et al. 2007b).

In order to have successful application of the ANN techniques and achieving effective results, one has to prepare the dataset well before applying to the neural network. They must be all uniform, having same wavelength scale, the starting and end wavelengths must be same for all the spectra and they must also have closely match spectral resolution. These must be valid to both the training and test dataset.

The training set for the PNN is a set of 158 spectra taken from Jacoby et al. (1984).
(hereafter JHC which contains a total 161 spectra), which covers the wavelength range of 3510-7427 Å for various O to M type stars. The set of 4999 spectra from SDSS with wavelength range of 3800-9200 Å forms the test set which gets classified into 158 spectro-luminosity classes of the reference JHC library. The SDSS test data were in fits format with six binary tables attached to the images. We converted the fits images into ASCII files (i.e. two columns of wavelength and fluxes) which are acceptable to the artificial neural networks, using the IRAF task `wspectext`. The spectral resolution of JHC is FWHM=4.5 Å with one flux value per 1.4 Å and the SDSS has a resolution of about FWHM=3.25 Å with each flux value at 0.5 Å. The spectral resolution of testing data set is brought to 4.5 Å with sampling rate of 5 Å, thus the final test and train sets are re-binned at 5 Å steps resulting in 561 data points for each spectra in training and test datasets. This is achieved by using appropriate convolution and spline fitting routines. Also both the libraries are normalized into unity.

3. Probabilistic Neural Networks

The Probabilistic Neural Network (PNN) was developed by D. F. Specht (1990). This network provides a general solution to pattern classification problems by following an approach developed in statistics, called Bayesian classifiers. This technique is constructed using ideas from classical probability theory, such as Bayesian classification and classical estimators for probability density functions (pdf) (E. Parzen 1962), to form a neural network for pattern classification and estimation of class membership (Specht & Romsdahl 1994). The Figure 1 shows the architecture of PNN. It is a four layer feedforward network consisting of input layer, pattern layer, summation layer and the output layer. The input layer contains n nodes to accept an n-dimensional feature vector (n=561) and is fully connected to the pattern layer which passes the input into pattern layer. The pattern
layer consists of K groups of pattern nodes. The $k^{th}$ group in the pattern layer contains $N_k$ number of pattern nodes, where, K is the number of training patterns or classes (i.e. 158 JHC library). The summation layer is having K nodes, one node for each class in the pattern layer. Pattern nodes of each $k^{th}$ group in the pattern layer are connected to the corresponding $k^{th}$ summation node in the summation layer. The probabilistic neural network uses the following estimator for the probability density function of $k^{th}$ group:

$$S_k(X) = \frac{1}{(2\pi \sigma^2)^{n/2}} \frac{1}{N_k} \sum_{i=1}^{N_k} \exp \left(-\frac{\|X - X_{k,i}\|^2}{2\sigma^2}\right).$$  \hspace{1cm} (1)

where $X_{k,i} \in \mathbb{R}^n$ is the center of the kernel, and $\sigma$ also known as the spread or smoothing parameter which is the deviation of the Gaussian function. Finally at the output layer the pattern vector $X$ will be classified as a class which corresponds to the summation unit with maximum value,

$$C(X) = \arg\max_{1 \leq k \leq K} (S_k).$$  \hspace{1cm} (2)

4. Classification

The application of neural networks to classification problems is conceptually the most consistent with their structure and function. Considering a finite set of states or classes, the objective in classification applications are the assignment of a random samples to one of those states with minimum probability of errors. Each sample is described by a set of parameters which form a vector, usually refereed to as the feature vector. The development of such a classification system can be achieved by appropriately training a neural network in such a way that it provides an output corresponding to one of the classes, provided that, the training sample used in forming its inputs belong to this class. The ability of the neural network to correctly classify a test sample that is close in some sense to one of the training samples, related directly to its generalization ability.
Stellar spectra classification is one of the application areas of the artificial neural networks. Here we use PNN for the classification, an excellent classifier with very fast training process and no local minima issues which outperforms other classifiers including back-propagation. After preprocessing both the training and test datasets, the training set with 158 spectra and 561 flux bins each, are given to the network for the training. So in the input layer of the network there will be 561 number of nodes corresponding to dimension of the spectra. Then the input will be passed to the next layer i.e. pattern layer. All the 158 training samples will be stored in the pattern layer and this layer organizes as groups and each group will be dedicated to one class of spectra. Hence there will be 158 groups in the pattern layer, each containing as many neurons as the number of flux bins in the spectra i.e. 561. In the testing stage, 4999 test spectra from SDSS will be given to the input layer and the distance between them and the training input vectors will be evaluated and then a vector will be produced by which closeness and similarity of the test data and training data can be judged. Finally these vectors will be summed up in the summation layer to produce an output as vector of probabilities and the maximum probability will be selected at the output node. The neuron corresponding to the highest probability value will be the closest class to the test spectra, for example if neuron $S_k$ in Figure 1 is having the highest output, it indicates that the given input belongs to the $K^{th}$ group or class.

5. Result

Automated classification of the SDSS-DR2 set of 4999 spectra were carried out using the PNN algorithm. Since we believe that this is a first attempt of classifying the SDSS spectra of originally unknown spectro-luminosity classes into a known set of classes of a
JHC reference library; we have provided the complete classification result in Table 4. This table gives the name of star, Spectro-Luminosity class given by ANN and Chi-square error of SDSS and its corresponding JHC reference spectra.

To illustrate the quality of fits of the SDSS spectra with respect to the JHC spectra, we have plotted some typical spectro-luminosity classes from each main spectral types in Figures 2-5 and 6-9. These plots consist of 16 panels per page covering most of the O to M main spectral types. The JHC reference spectrum are shown in bold black and the SDSS spectra in thin blue lines. Tables 1 and 2 lists the SDSS spectra name; corresponding JHC class obtained by the PNN and the corresponding $\chi^2$ value of these plots.

Figures 10 and 11 show a set of SDSS spectra which are having higher $\chi^2$ values as compared to those of Figures 2-9; most of which do not fit well with the corresponding JHC spectra obtained by the PNN. Table 3 lists those set of spectra with high $\chi^2$ values.

6. Discussion

As seen from classification result the high value of $\chi^2$ associated with the O5V spectro-luminosity class, two samples of which are shown in Figure 11. Though there is one spectra in test dataset which is correctly classified into this spectral type and that is spSpec-51673-0313-519 with $\chi^2$ value of 0.00029920 and is shown in Figure 2 which is well matching with its corresponding JHC spectra; in Figures 10 and 11 we show the worst case of each class with highest $\chi^2$ values.

A look at the panels in Figures 2-5 and 6-9 indicates that, except for some spectra, most of them show excellent matches. If one considers a $\chi^2$ value of 0.02 as a kind of

\footnote{The table is provided in separate file}
Table 1: List of spectra appearing in figures 2-5

| SDSS Spectra          | Spectro-luminosity | $\chi^2$ value |
|------------------------|--------------------|----------------|
| spSpec-52367-0332-184  | O9V                | 0.00142028     |
| spSpec-51984-0279-228  | O7.5V              | 0.00042054     |
| spSpec-51986-0294-423  | O6.5V              | 0.00701563     |
| spSpec-51942-0301-626  | O5.5V              | 0.00029600     |
| spSpec-51673-0313-519  | O5V                | 0.00029920     |
| spSpec-52000-0335-478  | O6.5III             | 0.00048330     |
| spSpec-51633-0268-008  | O6.5III             | 0.00042562     |
| spSpec-51941-0272-510  | B1.5V              | 0.00052162     |
| spSpec-51909-0276-370  | B3V                | 0.00062574     |
| spSpec-51908-0277-521  | B4V                | 0.00202127     |
| spSpec-51689-0312-031  | B6V                | 0.00089164     |
| spSpec-51900-0278-242  | B8V                | 0.00078749     |
| spSpec-51615-0303-060  | B1III               | 0.00133665     |
| spSpec-51928-0291-105  | B2III               | 0.00027330     |
| spSpec-51665-0311-575  | B2.5III             | 0.00082641     |
| spSpec-51990-0340-352  | B3III               | 0.00076806     |
| spSpec-51658-0282-110  | B4III               | 0.00022405     |
| spSpec-51691-0350-366  | B5III               | 0.00030136     |
| spSpec-51658-0282-067  | B7III               | 0.00111983     |
| spSpec-51792-0354-196  | B8III               | 0.00076665     |
| spSpec-51691-0342-435  | B9III               | 0.00045657     |
| spSpec-51663-0315-624  | B2II                | 0.00497184     |
| spSpec-51818-0358-126  | B0.5I               | 0.00156664     |
| spSpec-52056-0329-201  | B1.5I               | 0.00386845     |
| spSpec-51688-0302-490  | B2I                 | 0.00440111     |
| spSpec-51908-0277-055  | B3I                 | 0.00077680     |
| spSpec-52370-0330-020  | B5I                 | 0.00050732     |
| spSpec-51990-0310-393  | B7I                 | 0.00254126     |
| spSpec-51671-0299-592  | B8I                 | 0.00088153     |
| spSpec-51994-0293-108  | B9I                 | 0.00082505     |
| spSpec-51789-0352-587  | B1I                 | 0.00405424     |
| spSpec-51792-0354-451  | A1V                 | 0.00054832     |
| spSpec-51994-0309-313  | A2V                 | 0.00049425     |
| spSpec-51789-0352-177  | A3V                 | 0.00062889     |
| spSpec-51990-0310-307  | A5V                 | 0.00041014     |
Table 2: Table 1 (Contd.)

| SDSS Spectra          | Spectro-luminosity class | $\chi^2$ value |
|-----------------------|--------------------------|----------------|
| spSpec-51658-0282-539 | A6V                      | 0.00040037     |
| spSpec-51630-0266-233 | A7V                      | 0.00034089     |
| spSpec-51994-0309-194 | A8V                      | 0.00058785     |
| spSpec-51691-0350-044 | A9V                      | 0.00043968     |
| spSpec-51994-0293-470 | A3III                    | 0.00072669     |
| spSpec-51821-0359-263 | A6III                    | 0.00107148     |
| spSpec-51821-0359-142 | A8III                    | 0.00043082     |
| spSpec-51691-0342-518 | A0I                      | 0.00054997     |
| spSpec-51662-0308-083 | A1I                      | 0.00183806     |
| spSpec-51910-0269-055 | A2I                      | 0.00128973     |
| spSpec-51883-0271-121 | A3I                      | 0.00061977     |
| spSpec-51688-0302-167 | A4I                      | 0.00156048     |
| spSpec-51662-0308-503 | A7I                      | 0.00258414     |
| spSpec-51818-0358-078 | A9I                      | 0.00064258     |
| spSpec-51959-0283-021 | F0V                      | 0.00046135     |
| spSpec-51909-0276-426 | F3V                      | 0.00048153     |
| spSpec-51662-0308-343 | F4V                      | 0.00047088     |
| spSpec-51691-0342-357 | F5V                      | 0.00066779     |
| spSpec-51818-0358-060 | F6V                      | 0.00057737     |
| spSpec-52282-0328-287 | F7V                      | 0.00129746     |
| spSpec-52375-0326-035 | F8V                      | 0.00240744     |
| spSpec-52023-0287-188 | F9V                      | 0.00105487     |
| spSpec-51703-0353-570 | F0IV                     | 0.00045788     |
| spSpec-51699-0349-477 | F3IV                     | 0.00054928     |
| spSpec-51692-0339-051 | F0III                    | 0.00034837     |
| spSpec-51910-0275-458 | F4III                    | 0.00054288     |
| spSpec-51908-0277-315 | F5III                    | 0.00099659     |
| spSpec-51692-0339-214 | F6III                    | 0.00098363     |
| spSpec-51612-0280-593 | F7III                    | 0.00145028     |
| SDSS Spectra       | Spectro-luminosity | $\chi^2$ value |
|--------------------|--------------------|----------------|
| spSpec-52294-0327-328 | F8III              | 0.00202269     |
| spSpec-51789-0352-129 | F5II               | 0.00080027     |
| spSpec-51792-0354-184 | F0I                | 0.0086225      |
| spSpec-51943-0300-544 | F2I                | 0.00911999     |
| spSpec-51780-0351-300 | F3I                | 0.00235900     |
| spSpec-51957-0304-551 | F4I                | 0.00157235     |
| spSpec-52017-0366-297 | F5I                | 0.00569906     |
| spSpec-51699-0349-570 | F8I                | 0.00085424     |
| spSpec-51792-0354-388 | G0V                | 0.0106892      |
| spSpec-51957-0304-589 | G1V                | 0.0119590      |
| spSpec-51816-0360-178 | G2V                | 0.00070487     |
| spSpec-51694-0338-614 | G3V                | 0.00074789     |
| spSpec-51913-0274-130 | G4V                | 0.00097247     |
| spSpec-51699-0349-117 | G6V                | 0.00077054     |
| spSpec-51699-0349-252 | G7V                | 0.00065785     |
| spSpec-51699-0349-139 | G9V                | 0.00247349     |
| spSpec-51816-0360-287 | G2IV               | 0.00258696     |
| spSpec-51816-0360-351 | G5IV               | 0.00152954     |
| spSpec-51816-0360-568 | G0III              | 0.00128494     |
| spSpec-51780-0351-608 | G2III              | 0.00176844     |
| spSpec-51694-0338-196 | G4III              | 0.00282095     |
| spSpec-51994-0309-522 | G5III              | 0.00172599     |
| spSpec-51821-0359-556 | G6III              | 0.00141486     |
| spSpec-51699-0349-585 | G7III              | 0.00202173     |
| spSpec-51699-0349-441 | G8III              | 0.00222946     |
| spSpec-51689-0312-285 | G9III              | 0.00181964     |
| spSpec-51788-0355-169 | G8II               | 0.00260567     |
| spSpec-51816-0360-100 | G9II               | 0.00265346     |
| spSpec-51816-0360-497 | G0I                | 0.00359867     |
| spSpec-51673-0313-125 | G1I                | 0.00501194     |
| spSpec-51910-0269-313 | G3I                | 0.00302347     |
| spSpec-51699-0349-340 | G5I                | 0.00416412     |
| spSpec-51699-0349-328 | K0V                | 0.00130288     |
| spSpec-51699-0349-522 | K4V                | 0.00200172     |
| spSpec-51691-0342-037 | K5V                | 0.00259285     |
Table 4: Table 2 (Contd.)

| SDSS Spectra   | Spectro-luminosity | $\chi^2$ value |
|----------------|--------------------|----------------|
| spSpec-51780-0351-109 | K0III              | 0.00156690     |
| spSpec-51658-0282-282 | K2III              | 0.00281755     |
| spSpec-51780-0351-309 | K3III              | 0.00319767     |
| spSpec-51955-0298-293 | K4III              | 0.00154753     |
| spSpec-52313-0333-323 | K7III              | 0.00637097     |
| spSpec-51663-0315-540 | K6II               | 0.01685844     |
| spSpec-51821-0359-591 | K0I                | 0.00183392     |
| spSpec-51997-0337-129 | K5I                | 0.00271351     |
| spSpec-51959-0283-455 | M0V                | 0.00648934     |
| spSpec-51989-0363-264 | M1V                | 0.00333934     |
| spSpec-51662-0308-320 | M5V                | 0.01469228     |
| spSpec-52000-0288-064 | M3III              | 0.01214894     |
| spSpec-51658-0282-370 | M4III              | 0.01844951     |
| spSpec-51692-0339-064 | M3II               | 0.01805566     |
| spSpec-52375-0326-135 | M1II               | 0.00607657     |
Table 5: List of spectra with high $\chi^2$ values

| SDSS Spectra          | Spectro-luminosity class | Chisq. value   |
|-----------------------|--------------------------|----------------|
| spSpec-52017-0366-029 | O9V                      | 0.00392584     |
| spSpec-52375-0326-557 | O6.5III                  | 0.01137241     |
| spSpec-51957-0304-067 | B4V                      | 0.02226783     |
| spSpec-52375-0326-565 | B7III                    | 0.01909759     |
| spSpec-52000-0288-102 | B2III                    | 0.02392821     |
| spSpec-52368-0331-206 | A7V                      | 0.00735897     |
| spSpec-51957-0273-141 | A8III                    | 0.01864975     |
| spSpec-51789-0352-044 | A7I                      | 0.01932068     |
| spSpec-51662-0308-479 | F3V                      | 0.00255453     |
| spSpec-52056-0329-587 | F6III                    | 0.00313202     |
| spSpec-51613-0305-192 | F4I                      | 0.01137626     |
| spSpec-51994-0309-410 | G4V                      | 0.00792763     |
| spSpec-52017-0366-310 | G2IV                     | 0.01030766     |
| spSpec-52017-0366-293 | G5I                      | 0.01894512     |
| spSpec-51818-0358-528 | K0V                      | 0.00434149     |
| spSpec-51673-0313-021 | K4III                    | 0.01364253     |
| spSpec-51959-0283-365 | K0I                      | 0.00883682     |
| spSpec-51928-0291-599 | M1V                      | 0.01796854     |
| spSpec-51633-0268-613 | M3III                    | 0.01919349     |
| spSpec-51942-0301-308 | M1I                      | 0.02038125     |
| spSpec-51999-0336-405 | O5V                      | 0.83020251     |
| spSpec-51816-0360-166 | O5V                      | 0.02503208     |
limit, then, there are about 600 spectra which has $\chi^2$ value worse than this limit which corresponds to a success rate of about 88%.

We could classify the stars based on their temperature and luminosity classes with PNN technique, and only a few seconds were required to classify all 4999 spectra (in the test session). Considering this high speed of classification, it would enable us to apply this technique to classify larger datasets of the latest SDSS data releases. We are hoping to achieve better results in the future classification of SDSS datasets by using training samples from SDSS itself (i.e. the sample can be taken from our classification results by selecting the best match spectra of each spectral and luminosity class having smallest $\chi^2$ value in this catalog).

This work also encourages to use ANN based techniques to classify the complete SDSS set of spectra in near future.

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Fig. 1.— Schematic of a typical Probabilistic Neural Network.
Fig. 2.— SDSS-DR2 spectra with the corresponding JHC reference library spectra and its spectro-luminosity type (Table 1).
Fig. 3.— SDSS-DR2 spectra with the corresponding JHC reference library spectra and its spectro-luminosity type (Table 1).
Fig. 4.— SDSS-DR2 spectra with the corresponding JHC reference library spectra and its spectro-luminosity type (Table 1).
Fig. 5.— SDSS-DR2 spectra with the corresponding JHC reference library spectra and its spectro-luminosity type (Table 1).
Fig. 6.— SDSS-DR2 spectra with the corresponding JHC reference library spectra and its spectro-luminosity type (Table 2).
Fig. 7.— SDSS-DR2 spectra with the corresponding JHC reference library spectra and its spectro-luminosity type (Table 2).
Fig. 8.— SDSS-DR2 spectra with the corresponding JHC reference library spectra and its spectro-luminosity type (Table 2).
Fig. 9.— SDSS-DR2 spectra with the corresponding JHC reference library spectra and its spectro-luminosity type (Table 2).
Fig. 10.— SDSS-DR2 spectra with the corresponding JHC reference library spectra and its spectro-luminosity type (Table 3).
Fig. 11.— SDSS-DR2 spectra with the corresponding JHC reference library spectra and its spectro-luminosity type (Table 3).