Impact of the temperature of stars on their Redshift

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Letter

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Impact of the temperature of stars on their Redshift
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Abstract
We report a positive correlation (0.914384) between the possibility of finding unexpected high Redshift (Z > 0.001) and the average temperature of nearby stars in different categories. The paper uses SIMBAD Astronomical Database for analyzing information of 58,916 nearby stars. The study shows that as the temperature of stars rises, the chance of finding stars with the unexpected high Redshift will be increased more than 43 times, especially around 10,000 K. The average temperature and average Redshift of 58,717 stars are equal to the 6,346 K and 9.73353E-05. On the other hand, the average temperature and average Redshift of 199 stars with high Redshift are equal to the 9,771 K and 0.453568. We cannot describe the high Redshift of all massive stars by gravitational Redshift because there are many supermassive objects with low Redshift. Hence, the relationship between the temperature and the unexpected high Redshift of stars questions expansion of space theory, gravitational Redshift, and the Hubble constant.

Keywords: Unexpected Redshift, Expansion of space, Temperature of star, Gravitational Redshift

Introduction
Doppler effect, gravitational Redshift, and expansion of space theory [1-3] have been used for describing the Redshift by astronomers. They have used the shift in spectral lines of the electromagnetic waves and decreasing the energy of them for studying the universe. Redshift is known by name of Edwin Hubble [4], who proposed more distance objects move away with more velocity. This theory is known as Hubble’s law and explains that Redshift will be increased by increasing the distance of stars, and indirectly implies that the universe is expanding.

Although the expansion of space theory cannot describe blueshift, scientists have accepted that it is because of the doppler effect. Also, they believe that in the local objects area, because of the gravity between the objects, expansion of space does not increase the distances.

However, using SIMBAD Astronomical Database, we have found a list of nearby stars whose Redshift is too high [5]. The unexpected high Redshift of these stars questions Hubble’s law and expansion of space theory. For instance, while the average Redshift of the 58,717 nearby stars is equal to 9.73353E-05, the Redshift of the 41 stars is more than 1. Expansion of space theory cannot describe the nature of unexpected Redshift stars. On the other hand, for describing these phenomena with the Doppler effect we have a problem. SIMBAD Astronomical Database has

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calculated radial velocity of the “KUV 03292+0035” is equal to 259,326 km/s while its Redshift is equal to 2.71708 at the distance 9.0273 (mas) (http://simbad.u-strasbg.fr/simbad/sim-id?Ident=KUV+03292%2B0035&submit=submit+id).

According to the Doppler effect and high radial velocity of these stars that are almost equal to the speed of light, we have two options. If the star belongs to the binary stars, it moves on a circular orbit. Hence, we should detect changes in its Redshift even to the high blueshift along the time. If the star is moving away alone, we should detect its new distance. Neither change in the blueshift nor increasing the distance of these stars not reported.

On the other hand, using gravitational Redshift for describing the high Redshift of these stars is not enough. There are many massive stars with low Redshift. For instance, the mass of Alpha Camelopardalis is more than 30 times of the sun while its Redshift is equal to 0.000033. Table.1 shows a short list of supper massive objects with low Redshift.

| Name                  | Mass      | Redshift  | Temperature (K) | References                                      |
|-----------------------|-----------|-----------|-----------------|------------------------------------------------|
| Alpha Camelopardalis  | 30.9 $M_\odot$ | 0.000033  | 30,000          | http://simbad.u-strasbg.fr/simbad/sim-id?Ident=alpha+camelopardalis | https://en.wikipedia.org/wiki/Alpha_Camelopardalis |
| HD 93403              | 68.5 $M_\odot$ | -0.000049 | 39,300          | http://simbad.u-strasbg.fr/simbad/sim-id?Ident=HD+93403 | https://en.wikipedia.org/wiki/HD_93403 |
| HD 93205              | 40-60 $M_\odot$ | 0.000012  | 51,300          | http://simbad.u-strasbg.fr/simbad/sim-id?Ident=HD+93205 | https://en.wikipedia.org/wiki/HD_93205 |
| Gamma Velorum         | 9 $M_\odot$   | 0.000067  | 35,000          | http://simbad.u-strasbg.fr/simbad/sim-id?Ident=HD+68243 | https://en.wikipedia.org/wiki/Gamma_Velorum |

In this paper, we try to find a relationship between the temperature and the unexpected high Redshift of the nearby stars. We have used SIMBAD’s TAP service (http://simbad.u-strasbg.fr/simbad/sim-tap) for extracting the temperature of the stars. We have excluded data records with a temperature equal to 1. Also, we have used the average temperatures of the stars. We have found that there is a positive correlation between temperature and chance of finding unexpected high Redshift specially between the 10,000 K and 12,000 K.

**Special temperatures and unexpected high Redshifts**

Table.2 shows nearby stars with the highest Redshift. Column 1 is the name of the stars, column 2 is the Redshift of the stars, column 3 is the temperature, and column 4 is the distance of the stars. The table.2 is sorted descending on the Redshift of the stars at column 2.
| Star Name           | Z       | Temperature (K) | Parallax (mas) |
|--------------------|---------|----------------|----------------|
| LSPM J1247+0646    | 3.63758 | 5650           | 19.0575        |
| SDSS J154213.47+034800.4 | 2.73313 | 15667.5        | 6.8147         |
| EGGR 561           | 2.72013 | 14776          | 18.3113        |
| KUV 03292+0035     | 2.71708 | 26687          | 9.02           |
| SDSS J083226.57+370955.4 | 2.267   | 10089          | 8.4573         |
| SDSS J083011.35+383940.4 | 2.255   | 10113          | 9.302          |
| SDSS J213507.72-071655.6 | 2.25331 | 6714.5         | 7.9122         |
| PHL 1266           | 2.24238 | 10362          | 6.0652         |
| SDSS J010442.19-084343.9 | 2.23809 | 10098          | 8.0034         |
| SDSS J135205.59+514930.5 | 2.23562 | 10089          | 8.9041         |
| SDSS J231629.37-093845.6 | 2.20085 | 10082          | 10.1275        |
| SDSS J22629.42+004254.1 | 2.19833 | 10208.5        | 6.6263         |
| SDSS J090051.91+033149.3 | 2.18855 | 10098          | 8.6037         |
| LP 708-404         | 2.17845 | 10082          | 13.9743        |
| PB 6723            | 1.79766 | 10173.5        | 8.3065         |
| SDSS J100817.03+434931.7 | 1.76419 | 11946          | 6.8441         |
| SDSS J130144.99+615126.0 | 1.74365 | 40678          | 1.3244         |
| SDSS J033218.22-003722.1 | 1.55488 | 10289.75       | 9.0397         |
| SDSS J012532.03+135403.7 | 1.55168 | 6877           | 6.2755         |
| SDSS J215759.09+113730.1 | 1.55068 | 10296.5        | 6.5814         |
| LP 612-S           | 1.54233 | 6329           | 20.988         |
| WD 0848+159        | 1.48972 | 5747           | 10.4037        |
| PB 5130            | 1.32995 | 11678.5        | 8.3035         |
| SDSS J000054.38-090807.6 | 1.09969 | 10110          | 6.7805         |
| SDSS J091316.85+191345.4 | 1.098   | 8775           | 7.9499         |
| SDSS J081457.55+343744.9 | 1.09393 | 8821           | 14.6875        |
| [CDK2003] S-16     | 1.0838  | 10096          | 8.8904         |
| SDSS J013358.23-094229.3 | 1.0781  | 10108          | 5.7386         |
| SDSS J074204.78+434835.7 | 1.07725 | 10098          | 7.1639         |
| SDSS J170927.55+622901.5 | 1.07541 | 10090          | 6.5754         |
| SDSS J085443.33+350352.7 | 1.07476 | 4550           | 18.6348        |
| SDSS J031615.10+004716.0 | 1.07475 | 8247           | 9.0697         |
| SDSS J111504.50+013203.6 | 1.07434 | 6949.5         | 8.5223         |
| SDSS J075000.58+253812.3 | 1.07157 | 10098          | 14.5728        |
| SDSS J165538.51+372247.1 | 1.07079 | 10255.8        | 6.7888         |
| SDSS J215135.01+003140.2 | 1.06567 | 10200          | 12.6226        |
| SDSS J221955.26+135344.2 | 1.06412 | 10088          | 10.1458        |
| SDSS J124310.83+613207.9 | 1.06223 | 10087          | 7.5599         |
| SDSS J072147.38+322824.1 | 1.06063 | 11148          | 7.0797         |
| SDSS J083736.59+542758.4 | 1.0606  | 7590           | 10.9373        |
| SDSS J234132.83-010104.5 | 1.05755 | 10153          | 8.1581         |
Briefly, there is no relationship between Redshift and the temperature of the stars. But if we sort them according to the temperature, we could find that most of them could be divided into two individual categories. The first category includes temperatures almost 6,600 K, and the second category includes stars with temperatures around 10,000 K. Fig.1 illustrates the distribution of unexpected high Redshift nearby stars according to their temperature. Also, fig.2 illustrates the distribution of the highest Redshift stars between 4,000 and 12,000 K.

Fig.1. Distribution of 81 high Redshift nearby stars around the special temperatures:

Fig.2. Distribution of 78 high Redshift nearby stars between 4000 and 14000 K

Obviously, around the 10,000 K there is a high chance to find unexpected high Redshift stars.

Table.3 shows the possibility of finding unexpected high Redshift stars in the special range of temperatures. In the table.3, column 1 is the range of temperature, column 2 is the average temperature of column 1, column 3 is the number of the stars, whose temperature belongs to the range of temperature, column 4 is the number of stars whose Redshift is higher than 0.001, column
5 is the percentage of the unexpected high Redshift stars in the range, and column 6 is the average Redshift of the highest Redshift stars in column 4.

Table 3: Percentage of possibility of finding unexpected high redshift in the different temperature

| Temperature (K) | Average Temperature (K) | Number of stars | Number of unexpected Redshift (z>0.001) | Percentage of unexpected Redshift (z>0.001) | average |
|-----------------|-------------------------|-----------------|----------------------------------------|---------------------------------------------|---------|
| Less than 4000  | 2000                    | 5,555           | 26                                     | 0.46                                        | 0.00247 |
| 4000-6000       | 5000                    | 40,438          | 44                                     | 0.10                                        | 0.142236 |
| 6000-8000       | 7000                    | 11,248          | 32                                     | 0.28                                        | 0.380348 |
| 8000-10000      | 9000                    | 945             | 8                                      | 0.4                                         | 0.59005 |
| 10000-12000     | 11,000                  | 387             | 66                                     | 17.05                                       | 0.853342 |
| Greater than 12000 | 15,000                  | 1,161           | 23                                     | 19.81                                       | 0.46632 |

To conclude, column 5 shows that almost 20 percent of the stars with temperatures more than 12,000 K have unexpected high Redshift (z > 0.001). By increasing the temperature of the stars, the possibility of finding stars with unexpected Redshift will be increased. Also, column 5 shows that by increasing the temperature of the stars, the average Redshift of the unexpected high Redshift will be increased. The correlation between column 2 and data of column 5 is equal to 0.914384.

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Figures

Figure 1

Distribution of 81 high Redshift nearby stars around the special temperatures:

Figure 2

Distribution of 78 high Redshift nearby stars between 4000 and 14000 K