A Computation of The Mass Spectrum of Mesons and Baryons

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Abstract

In this paper we give a computation of the mass spectrum of mesons and baryons. By this computation we show that there is a consecutive numbering of the mass spectrum of mesons and baryons. We show that in this numbering many stable mesons and baryons are assigned with a prime number.

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1 Introduction

In this paper we give a computation of the mass spectrum of mesons and baryons. We show that there is a consecutive numbering of the mass spectrum of mesons and baryons. Also we show that in this numbering many stable mesons and baryons are assigned with a prime number.

We first consider the mesons listed in the Particle Data Group (PDA). Let us start with the π meson. Let us choose 45 as a rate. Then we have $3 \times 45 = 135$ which gives the mass 135 Mev of the $\pi^0$ meson. We notice that 3 is a prime number and we assigned it to the $\pi^0$ meson. Then we consider the kaon mesons. We have that $11 \times 45 = 495$. This approximates well the experimental mass 493.7 Mev of the $K^+$ and the $K^-$ mesons. We notice that 11 is a prime number and we assign it to the kaon mesons.

Let us then consider the η meson. We have $13 \times 45 = 585$ which approximates quite well the experimental mass 548.8 Mev of the η meson. Here let us make a more precise estimate of the mass of η meson. Let 45 be deviated by 3 to 42. This deviation may be considered as due to the effect of spin and orbital angular momentum for mass splitting. Then we have $13 \times 42 = 546$ which approximates well the experimental mass 548.8 Mev of the η meson. We have that 13 is a prime number and we assign it to the η meson. This then gives the mass spectrum of the first Eightfold Way of mesons. We shall later consider the η′ meson of the first nonet.

Let us then consider the next octet of vector mesons. Let us first consider the ρ meson. We have $17 \times 45 = 765$. This approximates the experimental mass 770 Mev of the $\rho^0$ meson. Let us then consider the ω meson. Let 45 be deviated by 1 to 46. As above this deviation may be considered as due to the effect of spin and orbital angular momentum for mass splitting. Then we have $17 \times 46 = 782$. This approximates well the experimental mass 783 Mev of the ω meson. We notice that both the $\rho^0$ meson and the ω meson correspond to the same prime number 17. Let us then consider the $K^*(892)$ meson. We have $19 \times 45 = 852$. This approximates quite well the experimental mass 892 Mev of the $K^*(892)$ meson. Here let us make a more precise estimate of the $K^*$ mesons. Let 45 be deviated by 2 to 47. Then we have $19 \times 47 = 890$. This approximates well the experimental mass 892 Mev of the $K^*(892)$ meson. we have that the $K^*(892)$ meson correspond to the prime number 19. Let us then consider the φ meson. We have $23 \times 45 = 1035$. This approximates well the experimental mass 1020 Mev of the φ meson. We notice that 23 is a prime number and we assign it to the φ meson. This thus gives the mass spectrum of the nonet of vector mesons.

Let us then consider the η′ meson of the first nonet. Let 45 be deviated by 3 to 42. Then we have $23 \times 42 = 966$. This approximates well the experimental mass 958 Mev of the η′ meson. This thus gives the mass spectrum of the first nonet of mesons.

We notice that these two nonets are finally numbered at the prime number 23. This is interesting because the next prime number is 29 which is relatively far apart from the prime number 23. We also notice that the consecutive prime numbers 11, 13, 17, 19 and 23 have all been assigned to the mesons of the first two nonets of mesons which are stable mesons.
The $\phi$ meson is considered as a meson of the form $s\bar{s}$ where $s$ denotes the strange quark. Then it is interesting to note that both the mesons $\phi$ and $\eta'$ correspond to the prime number 23. This shows that there is a relation between these two mesons. This agrees with the usual quark content of these two mesons that these two mesons are considered to have a component of $s\bar{s}$. Later we show that the mesons $a_0(980)$ and $f_0(980)$ also correspond to the prime number 23. From this we may conclude that these two mesons $a_0(980)$ and $f_0(980)$ should also relate to $s\bar{s}$. This agrees with the experiments that these two mesons lie very close to the opening of the $K\bar{K}$ channel [2]-[16].

Let us then considered the $J/\psi$ meson $c\bar{c}$ for the charm quark $c$. We have $67 \times 46 = 3082$. This approximates quite well the experimental mass $3096\text{ MeV}$ of the $J/\psi$ meson. Thus $J/\psi$ is assigned with the prime number 67.

Let us consider more on the $J/\psi$ meson. For the $J/\psi$ meson let us choose $23 \times 45$ as another rate. Then we have $3 \times 23 \times 45 = 3105$. This approximates well the experimental mass $3096\text{ MeV}$ of the $J/\psi$ meson. Thus the prime number 3 also corresponds to the $J/\psi$ meson which is a stable meson. We notice that $23 \times 45 \text{ MeV} = 1035\text{ MeV}$ is just the mass for the $\phi$ meson. This gives a relation between the strange quark and the charm quark.

Let us then consider the $\Upsilon$ meson which is of the form $b\bar{b}$ where $b$ denotes the beauty (or bottom) quark. We have $211 \times 45 = 9495$. This approximates quite well the experimental mass $9460\text{ MeV}$ of the $\Upsilon$ meson. We also notice that 211 is a prime number. Then let us consider the $\Upsilon(10023)$ meson which is the first excited state of the $\Upsilon$ meson. We have $223 \times 45 = 10035$. This approximates well the experimental mass $10023\text{ MeV}$ of the $\Upsilon'$ meson. It is interesting to notice that 223 is also a prime number and that it is the prime number next to the prime number 211 for the $\Upsilon$ meson.

Let us consider two more excited states $\Upsilon(10350)$ and $\Upsilon(10570)$ of the $\Upsilon$ meson. We have $230 = 10350$ and $235 \times 45 = 10575$. This approximate well the experimental masses of $\Upsilon(10350)$ and $\Upsilon(10570)$ respectively. However we notice that 230 and 235 are not prime numbers.

Thus we see that all the basic mesons except the meson $t\bar{t}$ for the top quark $t$ correspond to a prime number. For the meson $t\bar{t}$ because its mass is very large that we need a more accurate measurement of the value of its mass to determine the prime number for this meson $t\bar{t}$. We have $7993 \times 45 = 359685$ which approximately gives $360\text{ GeV}$ of the experimental mass of $t\bar{t}$. Then the prime number 7993 could be approximately for $t\bar{t}$.

Continuing in this way with 45 or its deviations as a rate we have that all the experimental masses of mesons in the table of mesons can well be approximated by this computation. For simplicity we list the computational result in a form of table. In this table we list together the light mesons and strange mesons which are separately listed in the Particle Data Group (PDA) [1]. In this table in the column of computed mass the first number of the product is as a consecutive number while the second number is as a deviation from the number 45. In this table the prime consecutive numbers are in bold face. From this table we see that there are more mesons which could be corresponded to a prime consecutive number. This is an evidence that prime numbers give more stable mesons than nonprime numbers. Also it is interesting to notice that the consecutive numbers from 26 to 53 have all been assigned to the mesons.

In this table of mesons for the mesons $a_0(980)$ and $f_0(980)$ we have $23 \times 43 = 989$. This approximates quite well the experimental mass $980\text{ MeV}$ of $a_0(980)$ and $f_0(980)$. Thus the prime number 23 is also assigned to $a_0(980)$ and $f_0(980)$. By the same reason as for the $\eta'$ meson we have that $a_0(980)$ and $f_0(980)$ are related to $\phi$ and their quark contents should have a component of $s\bar{s}$. This agrees with the experiments of these two mesons [4]-[15].
| Meson   | Computed mass  |
|---------|----------------|
| $\pi(135)$ | $3 \times 45 = 135$ |
| $K(494)$ | $11 \times 45 = 495$ |
| $\eta(549)$ | $13 \times 42 = 546$ |
| $\rho(770)$ | $17 \times 45 = 765$ |
| $\omega(783)$ | $17 \times 46 = 783$ |
| $K^*(892)$ | $19 \times 47 = 893$ |
| $\eta'(958)$ | $23 \times 42 = 966$ |
| $a_0(980)$ | $23 \times 43 = 989$ |
| $f_0(980)$ | $23 \times 43 = 989$ |
| $\phi(1020)$ | $23 \times 45 = 1035$ |
| $h_1(1170)$ | $26 \times 45 = 1170$ |
| $b_1(1235)$ | $27 \times 45 = 1242$ |
| $a_1(1260)$ | $28 \times 45 = 1260$ |
| $f_1(1285)$ | $28 \times 46 = 1288$ |
| $a_2(1320)$ | $28 \times 47 = 1316$ |
| $f_2(1270)$ | $29 \times 44 = 1276$ |
| $\pi(1300)$ | $29 \times 45 = 1305$ |
| $f_0(1370)$ | $29 \times 47 = 1363$ $(31 \times 44 = 1364)$ |
| $f_1(1420)$ | $29 \times 49 = 1421$ $(31 \times 46 = 1426)$ |
| $h_1(1380)$ | $30 \times 46 = 1380$ |
| $K_1(1270)$ | $31 \times 41 = 1271$ |
| $\eta(1295)$ | $31 \times 42 = 1302$ |
| $K_1(1400)$ | $31 \times 45 = 1395$ |
| $f_2(1430)$ | $31 \times 46 = 1426$ |
| $K_0^*(1430)$ | $31 \times 46 = 1426$ |
| $K_2^*(1430)$ | $31 \times 46 = 1426$ |
| $K(1460)$ | $31 \times 47 = 1457$ |
| $\pi_1(1405)$ | $32 \times 44 = 1408$ $(31 \times 45 = 1395)$ |
| $f_1(1510)$ | $32 \times 47 = 1504$ $(33 \times 46 = 1518)$ |
| $\omega(1420)$ | $33 \times 43 = 1419$ $(31 \times 46 = 1426, 29 \times 49 = 1421)$ |
| $\rho(1450)$ | $33 \times 44 = 1452$ $(31 \times 47 = 1457)$ |
| $a_0(1450)$ | $33 \times 44 = 1452$ |
| $f_0(1500)$ | $33 \times 45 = 1495$ |
| $f_2(1565)$ | $34 \times 46 = 1564$ $(37 \times 42 = 1554)$ |
| $K_0(1580)$ | $35 \times 45 = 1575$ |
| $\eta_2(1645)$ | $35 \times 47 = 1645$ |
| $X(1650)$ | $36 \times 46 = 1656$ |
| $K_1(1650)$ | $36 \times 46 = 1656$ |
| $\rho_3(1690)$ | $36 \times 47 = 1692$ |
| $K_2(1770)$ | $36 \times 49 = 1764$ |
| Meson       | Computed mass                             |
|-------------|-------------------------------------------|
| $K^*(1410)$ | $37 \times 38 = 1406$ (30 \times 47 = 1410) |
| $\eta(1440)$ | $37 \times 39 = 1443$ (32 \times 45 = 1440) |
| $f_2(1525)$ | $37 \times 41 = 1517$ (34 \times 45 = 1530) |
| $\chi(1600)$ | $37 \times 43 = 1591$                      |
| $\omega(1600)$ | $37 \times 43 = 1591$                      |
| $\omega(1670)$ | $37 \times 45 = 1665$                      |
| $\pi_2(1670)$ | $37 \times 45 = 1665$                      |
| $\rho_1(1700)$ | $37 \times 46 = 1702$                      |
| $X(1775)$ | $37 \times 48 = 1776$                      |
| $f_0(1710)$ | $38 \times 45 = 1710$                      |
| $K_0(1780)$ | $38 \times 47 = 1786$                      |
| $K_2(1780)$ | $38 \times 48 = 1824$                      |
| $f_2(1810)$ | $38 \times 47 = 1804$                      |
| $f_2(1950)$ | $41 \times 50 = 2000$                      |
| $a_0(2040)$ | $40 \times 51 = 2040$                      |
| $\phi(1680)$ | $41 \times 41 = 1681$ (42 \times 40 = 1680) |
| $K^*(1680)$ | $41 \times 41 = 1681$ (42 \times 40 = 1680) |
| $f_2(1640)$ | $41 \times 40 = 1640$ (37 \times 44 = 1628, 38 \times 43 = 1634) |
| $f_2(1810)$ | $41 \times 44 = 1804$                      |
| $f_0(1810)$ | $41 \times 45 = 1845$                      |
| $f_2(1950)$ | $41 \times 48 = 1968$ (43 \times 45 = 1935) |
| $f_2(2010)$ | $41 \times 49 = 2009$                      |
| $K_0(2045)$ | $41 \times 50 = 2050$                      |
| $f_2(2050)$ | $42 \times 49 = 2058$                      |
| $\eta(1760)$ | $43 \times 41 = 1763$ (40 \times 44 = 1760) |
| $\pi(1800)$ | $43 \times 42 = 1806$ (40 \times 45 = 1800) |
| $f_0(2020)$ | $43 \times 47 = 2021$                      |
| $f_2(2060)$ | $43 \times 48 = 2064$                      |
| $\pi_2(2100)$ | $43 \times 49 = 2107$                      |
| $f_2(2150)$ | $43 \times 50 = 2150$                      |
| $f_0(2150)$ | $43 \times 50 = 2150$                      |
| $K_2(1950)$ | $44 \times 45 = 1980$ (43 \times 46 = 1978, 46 \times 43 = 1978) |
| $\rho_1(2250)$ | $45 \times 50 = 2250$                      |
| $f_2(2300)$ | $46 \times 50 = 2300$                      |
| $f_2(2300)$ | $46 \times 50 = 2300$                      |
| $K(1830)$ | $47 \times 39 = 1833$ (39 \times 47 = 1833) |
| $f_2(2220)$ | $47 \times 47 = 2209$                      |
| $K_2(2250)$ | $47 \times 48 = 2256$ (50 \times 45 = 2250) |
| $\rho_1(2350)$ | $47 \times 50 = 2350$                      |
| $K_4(2500)$ | $48 \times 52 = 2496$ (47 \times 53 = 2491, 50 \times 50 = 2500) |
| $a_2(2500)$ | $49 \times 50 = 2450$                      |
| $f_0(2500)$ | $50 \times 44 = 2200$                      |
| $f_2(2300)$ | $51 \times 45 = 2295$                      |
| $f_2(2300)$ | $52 \times 45 = 2340$                      |
| $\eta(2225)$ | $53 \times 42 = 2226$                      |
| $K^*(2380)$ | $53 \times 45 = 2385$                      |
| $K_0(2320)$ | $54 \times 43 = 2322$                      |
| $f_0(2510)$ | $57 \times 44 = 2508$                      |
| $K(3100)$ | $67 \times 46 = 3082$                      |
| $X(3250)$ | $71 \times 46 = 3266$                      |
Let us then consider the mass spectrum of baryons. In contrast to the rate 45 for mesons let us choose 72 as the rate for baryons.

Let us start from the neutron $n = N(939)$. We have $13 \times 72 = 936$. This approximates well the experimental mass $939\text{ MeV}$ of the neutron $n = N(939)$. We have that the prime number 13 is assigned to proton and neutron. Then we consider $\Lambda(1115)$. Let 72 be deviated to 66. Then we have $17 \times 66 = 1122$. This approximates well the experimental mass $1115\text{ MeV}$ of $\Lambda(1115)$. We have that the prime number 17 is assigned to $\Lambda(1115)$. Then we consider $\Sigma(1193)$. We have $17 \times 70 = 1190$ where 70 is as a deviation of 72. This approximates well the experimental mass $1193\text{ MeV}$ of $\Sigma(1193)$. Thus the prime number 17 is also assigned to $\Sigma(1193)$. Then we consider $\Xi(1317)$. We have $19 \times 69 = 1311$ where 69 is as a deviation of 72. This approximates well the experimental mass $1317\text{ MeV}$ of $\Xi(1317)$. The prime number 19 is assigned to $\Xi(1317)$. This gives the mass spectrum of the first Eightfold Way of baryons.

Let us then consider the first decuplet of baryons. Consider first $\Delta(1232)$. We have $17 \times 72 = 1224$. This approximates well the experimental mass $1232\text{ MeV}$ of $\Delta(1232)$. The prime number 17 is assigned to $\Delta(1232)$. Then we consider $\Sigma(1385)$. We have $19 \times 73 = 1387$ where 73 is as a deviation of 72. This approximates well the experimental mass $1385\text{ MeV}$ of $\Sigma(1385)$. The prime number 19 is then assigned to $\Sigma(1385)$. Then we consider $\Xi(1530)$. Let 72 be deviated by 1 to 73. Then we have $21 \times 73 = 1533$. This approximates well the experimental mass $1530\text{ MeV}$ of $\Xi(1530)$. The number 21 is assigned to $\Xi(1530)$. (On the other hand we also have $19 \times 81 = 1539$ which also approximates 1530 well. Thus the prime number 19 may also be assigned to $\Xi(1530)$. However 81 is a larger deviation from 72 than 73). Finally we consider $\Omega(1672)$. Let 72 be deviated by 1 to 73. Then we have $73 \times 23 = 1679$. This approximates well the experimental mass $1672\text{ MeV}$ of $\Omega(1672)$. Thus the prime number 23 is assigned to $\Omega(1672)$. This gives the mass spectrum of the first decuplet of baryons.

It is interesting to notice that as the $\phi$ meson we have that the $\Omega(1672)$ baryon also corresponds to the prime number 23. Also the second octet of vector mesons and the first decuplet of baryons are both assigned with prime numbers 17, 19 and 23. This shows that the second octet of mesons corresponds to the first decuplet of baryons.

Continuing in this way we have that all the experimental masses of baryons in the table of baryons in the Particle Data Group (PDA) can well be approximated by this computation. For simplicity we list the computational result in a form of table. In this table in the column of computed mass the first number of the product is as a consecutive number. Also the prime consecutive numbers are in bold face.
| Nbaryon | Computed mass | ∆baryon | Computed mass |
|---------|---------------|---------|---------------|
| N(939)  | $13 \times 72 = 936$ | $\Delta(1232)$ | $17 \times 72 = 1224$ |
| N(1440) | $19 \times 76 = 1444$ 20 \times 72 = 1440 | $\Delta(1550)$ | $21 \times 74 = 1554$ |
| N(1520) | $19 \times 80 = 1520$ | $\Delta(1600)$ | $22 \times 73 = 1606$ |
| N(1535) | $19 \times 81 = 1539$ | $\Delta(1620)$ | $23 \times 70 = 1610$ |
| N(1540) | $23 \times 67 = 1541$ 22 \times 75 = 1540 | $\Delta(1700)$ | $23 \times 74 = 1702$ 25 \times 68 = 1700 |
| N(1650) | $23 \times 72 = 1656$ 22 \times 75 = 1650 | $\Delta(1905)$ | $23 \times 83 = 1909$ |
| N(1675) | $23 \times 73 = 1679$ 25 \times 67 = 1675 | $\Delta(1930)$ | $23 \times 84 = 1932$ |
| N(1680) | $23 \times 73 = 1679$ 24 \times 70 = 1680 | $\Delta(1920)$ | $24 \times 80 = 1920$ |
| N(1700) | $23 \times 74 = 1702$ 25 \times 68 = 1700 | $\Delta(1940)$ | $24 \times 81 = 1944$ |
| N(1710) | $23 \times 74 = 1702$ 24 \times 71 = 1704 | $\Delta(1900)$ | $25 \times 76 = 1900$ |
| N(1720) | $23 \times 75 = 1727$ | $\Delta(1910)$ | $29 \times 66 = 1914$ |
| N(1900) | $25 \times 76 = 1900$ | $\Delta(1950)$ | $29 \times 67 = 1943$ |
| N(1990) | $28 \times 71 = 1988$ | $\Delta(2150)$ | $29 \times 74 = 2146$ |
| N(2000) | $29 \times 69 = 2001$ | $\Delta(2160)$ | $30 \times 72 = 2160$ |
| N(2080) | $29 \times 72 = 2088$ | $\Delta(2200)$ | $31 \times 71 = 2201$ |
| N(2100) | $30 \times 70 = 2100$ | $\Delta(2300)$ | $31 \times 74 = 2294$ |
| N(2190) | $29 \times 75 = 2175$ 30 \times 73 = 2190 | $\Delta(2350)$ | $31 \times 76 = 2356$ |
| N(2200) | $31 \times 71 = 2201$ | $\Delta(2400)$ | $30 \times 80 = 2400$ |
| N(2220) | $31 \times 72 = 2232$ | $\Delta(2420)$ | $31 \times 78 = 2418$ |
| N(2250) | $31 \times 73 = 2263$ | $\Delta(2500)$ | $31 \times 81 = 2511$ |
| N(2600) | $37 \times 70 = 2590$ | $\Delta(2850)$ | $37 \times 77 = 2849$ |
| N(2700) | $37 \times 73 = 2701$ | $\Delta(2750)$ | $41 \times 67 = 2747$ |
| N(2800) | $37 \times 76 = 2812$ | $\Delta(2950)$ | $41 \times 72 = 2952$ |
| N(3000) | $41 \times 73 = 2993$ | $\Delta(3230)$ | $43 \times 75 = 3225$ |
| N(3030) | $41 \times 74 = 3034$ 43 \times 71 = 3053 |
| N(3245) | $47 \times 69 = 3243$ |
| N(3690) | $53 \times 70 = 3710$ |
| N(3755) | $53 \times 71 = 3763$ |
| Abaryon | Computed mass | Σbaryon | Computed mass |
|---------|---------------|---------|---------------|
| Λ(1115) | 17 × 66 = 1122 | Σ(1193) | 17 × 70 = 1190 |
| Λ(1405) | 19 × 74 = 1406 | Σ(1385) | 19 × 73 = 1387 |
| Λ(1520) | 19 × 80 = 1520 | Σ(1480) | 23 × 64 = 1472 |
| Λ(1600) | 23 × 70 = 1610 | Σ(1560) | 23 × 68 = 1564 |
| Λ(1670) | 23 × 73 = 1679 | Σ(1580) | 23 × 69 = 1587 |
| Λ(1690) | 23 × 74 = 1702 | Σ(1620) | 23 × 70 = 1610 |
| Λ(1800) | 23 × 78 = 1794 | Σ(1660) | 23 × 72 = 1656 |
| Λ(1810) | 23 × 79 = 1817 | Σ(1670) | 23 × 73 = 1679 |
| Λ(1820) | 23 × 79 = 1817 | Σ(1690) | 23 × 74 = 1702 |
| Λ(1830) | 23 × 80 = 1840 | Σ(1750) | 23 × 76 = 1748 |
| Λ(1890) | 29 × 65 = 1885 | Σ(1775) | 23 × 77 = 1771 |
| Λ(2000) | 29 × 69 = 2001 | Σ(1840) | 23 × 80 = 1840 |
| Λ(2020) | 29 × 70 = 2030 | Σ(1880) | 29 × 65 = 1885 |
| Λ(2100) | 29 × 72 = 2088 | Σ(1915) | 29 × 66 = 1914 |
| Λ(2110) | 29 × 73 = 2117 | Σ(1940) | 29 × 67 = 1943 |
| Λ(2325) | 31 × 75 = 2325 | Σ(2000) | 29 × 69 = 2001 |
| Λ(2350) | 31 × 76 = 2356 | Σ(2030) | 29 × 70 = 2030 |
| Λ(2585) | 37 × 70 = 2590 | Σ(2070) | 29 × 71 = 2059 |
| Σ(2080) | 29 × 72 = 2088 |
| Σ(2100) | 30 × 70 = 2100 |
| Σ(2250) | 31 × 73 = 2263 | 30 × 75 = 2250 |
| Σ(2455) | 31 × 79 = 2449 | 37 × 66 = 2442 |
| Σ(2620) | 37 × 71 = 2627 |
| Σ(3000) | 41 × 73 = 2993 |
| Σ(3170) | 43 × 74 = 3182 |
| Ξ baryon | Computed mass | Ω baryon | Computed mass |
|---------|---------------|---------|---------------|
| Ξ(1317) | 19 \times 69 = 1311 | Ω(1672) | 23 \times 73 = 1679 |
| Ξ(1530) | 21 \times 73 = 1533 | Ω(2250) | 31 \times 73 = 2263 |
| Ξ(1630) | 23 \times 71 = 1633 | Ω(2470) | 37 \times 67 = 2479 |
| Ξ(1680) | 23 \times 73 = 1679 | Ω(2380) | 31 \times 77 = 2387 |
| Ξ(1820) | 23 \times 79 = 1817 | Ω(2470) | 37 \times 72 = 2376 |
| Ξ(1940) | 29 \times 67 = 1943 | | |
| Ξ(2030) | 29 \times 70 = 2030 | | |
| Ξ(2120) | 29 \times 73 = 2117 | | |
| Ξ(2250) | 31 \times 73 = 2263 | | |
| Ξ(2370) | 31 \times 76 = 2356 | | |
| Ξ(2500) | 31 \times 81 = 2511 | | |

To conclude, we have given a computation of the mass spectrum of mesons and baryons. From the above tables we see that our computation can approximate the experimental masses of mesons and baryons. From this computation we show that there is a consecutive numbering of the mass spectrum of mesons and baryons and it is interesting that in this numbering many stable mesons and baryons are assigned with a prime number. In addition to the Regge theory and the constituent quark model (CQM)\[17\][18][19] this computational method may provide a way to the study of the mass spectrum of mesons and baryons. We shall give a model of mesons and baryons from which this computation is based on. In this model each meson or baryon will be considered as a knot.

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