What   mean   Angle of 18 degrees   for long lived Elementary Particles?

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Abstract

Enigmatic unheeded link revealed between the values of mass some elementary particles and angle of 18 degrees. Shown   the relationship 18 degrees with Golden ratio. It is surprising that, along with the angle of 18 degrees,   the ratio of the mass of the proton and electron   were a multiple of 18.

Once   imagined   to me that the Universe as a trigonometric function similar to tangent. Because   area of existence of tangent spread from (- ∞1, 0,1 + ∞)

I also suggested that the unit(1) of the Universe could be the mass of a proton, the king of all elementary particles   and equal to =1 on the mathematical   sense.

I will try to show some specific observation concerning of mass elementary particles and call it phenomenon of 18 degrees. Actually (17-19) degrees

The phenomenon of 18 degrees I found accidentally by calculating experiment with values of ma

enigmatic, but I couldn't find a explanation.

Fig1.Ignoring Eta mesons, where is life time is very small (10^-21,10^-23sec). I divided values of pseudoscalar meson mass to mass of proton Mpr(938.27 Mev). Then interpreted a quotients as a inverse tangent and analyzed the angles.

m(Mev)	tan^-1(m/Mp)
π+ 139.57	8.41(deg)=(45-37)deg
π0 134.97	8.13(deg)=(45-37)deg
η 547.85	30,26(deg)=(45-15)deg

η′(958) 957.78   45,58(deg)=(45+0,6)deg

η c(1S) 2,980.3   72,52(deg)=(45+27,5)deg

η b(1S) 9,390.9   84,29(deg)=(45+39,3)deg

K+ 493 27.   75(deg)= (45-18)deg

K0 497.614   27.9(deg)=(45-18)deg

K0 S 497.61   27,93 deg=(45-18)deg

K0 L 497.61   27,93 deg=(45-18)deg

D+- 1869   63.34(deg)=(45+18)deg

D0 1864   63.28(deg)=(45+18)deg

D+ s 1968   64.5(deg)=(45+18)deg

B+ 5279   79.9(deg)=(45+35)deg

B0 5279   79.9(deg)=(45+35)deg

B0 s 5,366.   80,08 (deg) = (45+35)deg

B+ c 6,277±6   81.41(deg)= (45+35)deg

Approx. summary: Mpi=Mpr x tan(45-2×18)deg

Mk=Mpr x tan(45-18)deg

Md=Mpr x tan(45+18)deg

Mb=Mpr x tan(45+2×18)deg

Other case of 18 degrees where mass of proton vs. mass of charged leptons

μ− 105.65 Mev   6.424 = (45-38.576) deg = (45-2x19)deg

τ− 1777 Mev   62.16 = (45+17.165) deg = (45+17) deg

Heaviest baryon mass Mb=5788 Mev

Mb/Mpr =6.168; tan^-1=80,8 deg; 80,8deg-45deg=35,8deg;

Gap of 36(18x2) degrees revealed for baryon mass.

B.t.w.tan18,4 deg =1/3. We meet ratio 1:3 [7]

Angle of 18 degrees has indirect connection with Golden ratio.

$$\frac{a+b}{a} = \frac{a}{b} = \varphi.$$

Through simplifying the fraction and substituting in b/a = 1/phi

$$\varphi^2 - \varphi - 1 = 0.$$

$$\varphi = \frac{1+\sqrt{5}}{2} = 1.61803\,39887\ldots$$

$$\varphi = 1 + 2\sin(\pi/10) = 1 + 2\sin 18°$$

$$\varphi = \frac{1}{2}\csc(\pi/10) = \frac{1}{2}\csc 18°$$

$$\varphi = 2\cos(\pi/5) = 2\cos 36°$$
$$\varphi = 2\sin(3\pi/10) = 2\sin 54°.$$

One can construct a golden spiral, a logarithmic spiral that grows outward by a factor of the golden ratio for every 90 degrees of rotation (pitch about 17.03 degrees), or approximate it using Fibonacci number.

In regular icosagon (20-sided polygon) interior angle is 162 deg that exterior angle would be 18deg.

Platonic solids dodecahedron and icosahedrons also have connection with angle 18 degrees.

Then i found an amazing relationship between the number of 18 and mass of quarks.

Consider natural logarithms mass of 6 quarks [5] and explore them:

Mu=1.8 -3 MeV; Md=4.5-5.5 MeV

lnMu=0.58-1.09; lnMd=1.50-1.70

Ms=90-100 MeV; Mc=1250-130 MeV;

lnMs=4.49-4.60; lnMc=7.13-7.17

Mb=4150-4210MeV; Mt=172900-174300MeV;

lnMb=8.33-8.34; lnMt=12.06;

We obtain next logarithm values: 1;2;4;5;7;8;12. Note that numbers divisible by 3 (3, 6, 9) are absent, except the last number n=12 .

That means absent values: e^3; e^6; e^9; e^10; e^11. One more confirmation comprehensive Ratio 3:1.See my essay [6]

Three of these divisors (3, 6 and 9) add up to 18, 3+6+9=18. 18 is semiperfect number in mathematics.

Some special properties of number 18:

1. 18 is the only number that equals twice the sum of its decimal digits.

2. In the rectangle 3x6, the sides of which are expressed in whole numbers, the area is numerically equal to the perimeter.
3. Any integer always gives only one digit in the period when divided by 18.
   1/18=0.055555; 55:18=0.2777777;   71:18=3.944444
4. 18 is intermediate number between full reptend prime 17 and 19.

Recently discovered Higgs boson value of mass divisible to 18. Mass of Higgs 125 Gev apr.18x7. Mass of Z-boson 91.1Gev =18x5

Ratio mass of proton to electron 183615 = 18x102

Other interesting observation revealed on the masses of baryons.[8] I selected particles with quantum number ½ and 4-star status. Most of these values divisible to 18.

Proton (938.27Mev)18x52,1,neutron (939.56Mev)18x52.1,

Lambda(1115.7Mev)18x62,charmed Lambda(2286.4Mev)18x127,

Sigma(1189,3Mev)18x66. Charmed Sigma(2575,6Mev)18x143,

Xi(1314,8Mev)18x73,charmed Xi(2467,8Mev)18x137.

What mean this coincidence between angle of 18 degrees and number 18?

Is it accidental coincidence or not?

References:

1.http://en.wikipedia.org/wiki/List_of_mesons .

 2. http://www.fqxi.org/community/forum/topic/946 Is the ratio 3:1 a comprehensive principle…..

3. http://en.wikipedia.org/wiki/List_of_baryons