

Angle of 18 degrees for long lived Elementary Particles

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Abstract

An unheeded link revealed between the values of mass some elementary particles at an angle of 18 degrees.

Shown the relationship 18 degrees with Golden ratio.

The area of the existence tangent function ranged from $(-\infty, 0, 1+\infty)$

I mean content of the universe as a metric trigonometric function.

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 in the mathematical sense.

I will try to show some specific observation concerning of mass elementary particles[1] and call it the phenomenon of 18 degrees.

Actually $(18+1)\text{deg}$.

I uncovered phenomenon of 18 degrees accidentally by calculating experimenting with values of mass. I couldn't find an explanation.

Ignoring eta mesons, where is lifetime very small $(10^{-21}, 10^{-23}\text{sec})$.

I divided values of pseudoscalar meson mass by the mass of proton Mpr (938.27 Mev). I then interpreted the quotients as a inverse tangent and analyzed the angles.

I calculating below (Mev)

$\tan^{-1}(m/M_p)$

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π^+ 139.57	8.41 (deg)=(45-37) deg
π^0 134.97	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
$\eta c(1S)$ 2,980.3	72,52(deg)=(45+27,5)deg
$\eta b(1S)$ 9,390.9	84,29(deg)=(45+39,3)deg
K^+ 493.27.	75(deg)= (45-18)deg
K^0 497.614	27.9(deg)=(45-18)deg
$K^0 S$ 497.61	27,93 deg=(45-18)deg
$K^0 L$ 497.61	27,93 deg=(45-18)deg
$D^+ 1869$	63.34(deg)=(45+18)deg
$D^0 1864$	63.28(deg)=(45+18)deg
$D^+ s$ 1968	64.5(deg)=(45+18)deg
$B^+ 5279$	79.9(deg)=(45+35)deg
$B^0 5279$	79.9(deg)=(45+35)deg
$B^0 s$ 5,366.	80,08 (deg) = (45+35)deg
$B^+ c$ 6,277±6	81.41(deg)= (45+35)deg

Approx.summary:

$M_{pi}=M_{pr} \times \tan(45-2 \times 18)\text{deg}$

$M_k=M_{pr} \times \tan(45-18)\text{deg}$

$M_d=M_{pr} \times \tan(45+18)\text{deg}$

$M_b=M_{pr} \times \tan(45+2 \times 18)\text{deg}$

Other cases of 18 degrees where mass of proton vs. mass of charged leptons is 18 degrees

$$\mu - 105.65 \text{ Mev} \quad 6.424 = (45-38.576) \text{ deg} = (45-2 \times 19) \text{ deg}$$

$$\tau - 1777 \text{ Mev} \quad 62.16 = (45+17.165) \text{ deg} = (45+17) \text{ deg}$$

$$\tan 18.4 \text{ degree} = 1/3$$

An angle of 18 degree has indirect connection with golden ratio

References: 1. <https://pdg.lbl.gov/>