A Possible Symmetry Between Bradyons and Tachyons

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Abstract

Faster than light tachyons are generaly considered as hypothethical particles. Bradyons, subluminal particles, are part of our common world. We are interested in the interaction between bradyons and tachyons, assuming they exist. The collision between them is well described by the conservation of energy and momentum. Bradyons are caracterized by rest mass m or fundamental energy ($c = 1$); tachyons by pseudo-mass M or fundamental momentum. A bradyon initially at rest is supposed to absorb a tachyon. The bradyon then recoils with a kinetic energy T given by $T = M^2/2m$ depending only of two fundamental constants m and M. This would be the base of the tachyo-electric effect.. We consider in this paper the possible symetry between bradyons and tachyons.

Keywords : bradyons, tachyons, electric monopole, magnetic monopole, neutrinos

1 Introduction

In previous contributions to CASYS (1999, 2000), we have tentatively shown the role of tachyons in (astro)physics [2, 3]. We hope to convince the reader of the present paper that there is a dichotomy in the universe, with ressemblances and differences, between subluminal bradyons and superluminal tachyons. Mostly based on partial, or exploratory, experiments we want to express the complementaryness between the two worlds.

2 Experiments

From experiment, we found a bump at 170 keV when absorbing gamma rays by copper in an iron room. Detection was by NaI(Tl). Interpreting this bump as kinetic recoil energy of electrons from tachyon absorption, we found $M = 418$ keV probably related to $m = 511$ keV of electron. The recoil electrons would have a velocity of $v = 0.661$. If tachyon absorption takes place on protons, they would recoil with an

energy of 93 eV or a velocity of 133 km/s , corresponding respectively to solar corona temperature and submultiple of solar wind velocity.

3 Symmetry

The (bradyon ; tachyon) duality could be expressed in a charged monopolar form. A correct frame is probably (space-time ;momentum-energy). In both case, light velocity c is a limit velocity (from below ;from above). Nevertheless these two universes are in interaction thanks to the tachyo-electric effect. Mass m and pseudomass M seem to have different behaviour (m, M(B)) under external fields, where B is the ambient magnetic field. This resembles the effective mass m^* of electron in solid state. When c = 1, (E, p) relations are ($E^2 - p^2 = m^2$; $p^2 - E^2 = M^2$) wich imply metrics of opposite signs. Correct mechanics are probably (Quantum ;Classical). The (masses; pseudomasses) are probably (511 keV; 418 keV) and (about 300 MeV ; 392 MeV) for « electrons » and « quarks ».

The black hole at the center of the Galaxy [1] is a hole for swallowed bradyons. It could be a while hole for tachyons, ejecting all tachyons it contains. A possible evidence is the 135 km/s Galaxy arm in line with ejected tachyons.

TABLE

	Bradyons	Tachyons
velocity	v < c	v>c
monopole	electric	magnetic
correct frame	Space-time	Momentum-energy
« mass »	Mass f.i . 511 keV, 300 MeV	Pseudo-mass(B) f.i. 418 keV, 392 MeV
mechanics	quantum	classical
hole in Galaxy	black	white
leptons	electrons,quarks	neutrinos ?
spin	0, 1/2, 1, 3/2, 2, ...	1 ?

4 Conclusion

From the table, one sees a possible symmetry. There is a potential relation of tachyons and magnetic monopoles (m.m.) to the following fields apparently unrelated, mainly if tachyons transport angular momentum (spin) : compositeness (preons), Dark Matter (a Galaxy filled with tachyons), Higgs particle decaying into tachyons, Ball Lightning(m.m. catalyst for nuclear reactions) , neutrinos and Solar neutrino problem,

Earth core rotation, outer planets Heat Ratio of two from probable spinning extra energy coming from the Sun. (Uranus is normal in heat but rotates almost in plane of ecliptic ; others are hot and rotates normally).

References

[1] http://science.nasa.gov/headlines/y2001/ast05sep_1.htm?list124119

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[3] Steyaert Jacques J. (2001), *Tachyons in Astrophysics : Dark Matter, the Radius and Mass of the Neutron Star SS433*, Partial proceedings of CASYS 2000, International Journal of Computing Anticipatory Systems, Vol. 10, pp. 227, 229.