Dark Matter Frequency in Complex Space

J.A.de Wet
PO Box 514, Plettenberg Bay, 6600, South Africa

Abstract. In this note we propose that Dark Matter belongs to the complex space of the exceptional lie Algebra E6. This is why it has not been observed, but does have a fundamental frequency f.

Key Words: E6, Equiharmonic Lattice, Quarks, Hessian Polyhedron.

I. Introduction

In a recent paper on ‘What are Quarks’ [2] it was proposed that quarks belong to the imaginary axis of the graph of the Hessian Polyhedron E6 with 3 real and 3 imaginary axes. This is depicted in Fig.1 below, where the imaginary vertices representing the 3 up and down quarks u,d that make up protons and neutrons and their anti-particles are in the outer circle; leaving the inner ring for leptons and strange particles with the heavy τ+ and ντ particles in the center. Fig. 1 is actually a projection E6/F4 and is the subalgebra (su3)color x (su3)spin x (su3)isospin. This figure was authenticated by the employment of Theta Functions which are essentially a rotation in a space with one real co-ordinate K and one complex co-ordinate iK which are linked by the exponential nome q of the ratio \( \frac{ik}{K} \) that are quarter periods on the real and imaginary axes. Particularly if these are equiharmonic, or multiples of a common frequency f. Then q=0.06583=\( \exp(\frac{\pi i K}{K}) \) or \( \frac{ik}{K} = \frac{\sqrt{3}}{2} = \sin 120^\circ \) or sin 60° (1)

Which is precisely the angle in Fig. 1 that defines quarks and anti-quarks in an equiharmonic lattice [3,Ch.4]. In this way the E6 lattice of Fig. 1 defines a coupling constant uniting up and down quarks and the fundamental frequency f could be electromagnetic in 3space or Dark Matter frequency in complex space which, according to Arvanitaki [1] of the Perimeter Institute, may be almost audible resonating in the kilohertz range. If Dark Matter is in complex space CP3 then this would explain why it is not seen.

References

[1]. Arvanitaki, The Dark Matter signal, Weblog /2016/03. Online
Figure Captions

Figure 1. Caption of figure