A Deuteron Unification Model for Gravity with the Standard Model of Physics

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Introduction

The name WIGRIS for my MINT (Mathematik, Informatik, Naturwissenschaften, Technik) [1] 2017 was chosen for my follow up research on the orthomodukar theory which I developed in my book 1983. WI stands for a weak force isospin exchange from a u- to a d-quark in a rotors time cycle between a deuterons two nucleons proton and neutron. I added IS at the end to make it a word. SI is a strong force (independent of the WI force) gluon exchange driven rotor. In my deuteron model is gravity GR added: the general relativistic scaling factor of Schwarzschild metric is a Moebius transformation MT, scaled of order 6 and drives in 6 cyclic steps the SI and WI motors. WI and SI are also in special relativistic motion against one another for getting a common group speed for its parts. There are several videos available which show the single changes of deuteron states in time. As usual, they can also occur as mixed states. A third motor POT is for GR and EM: For gravity exists a 5-dimensional theory of E: Schmutzer which unifies the electromagnetic EM and gravity fields. I take this for the strong geometry factor, a 5-dimensional sphere and norm it projectively to a complex 2-dimensional space with boundary a 2-dimensional Riemannian sphere with the MTs symmetry. The model is described in octonion vector space with a rolled Kaluza-Klein coordinate for the electromagnetic interaction EMI. In addition, to extend the standard model of physics by this projective and projection geometry and by the symmetry of MTs, there are many octonion cross product measuring apparatus beside the Pauli spin. Seven of them are found as Fano lines in the memo Fano figure, rgb-gravitons whirls are another SI one for nucleons neutral colour charges red, green, blue, for stretching and squeezing the nucleon volume. The three items, new geometries, symmetries and non-commutative cross product measures need experimental verification in future.

Results and Discussion

SI is a strong force gluon exchange driven rotor which is responsible for many things: a blue colour charge vector rotates and fixes three barycentre's for three quarks in a nucleon. Then six energies are integrated from forces to potentials or speeds. In the above prism figure for deuteron the quarks are marked as vertices 1u, 2u, 6d, 3d, 4u, 5d on the endpoints of the Euclidean coordinates on the strong sphere. The strong gluon exchanges between them are marked on intervals as 12, 16, 26, 34, 35, 45 using the two colour charge gluons. They drive also the six SI cross product integrations from forces (mathematical second derivatives) to speeds or potentials (first derivatives in time or length/radius, area, volume) which are for the energies EM force/potential, heat/entropy, kinetic, magnetic, mass force/potential, and rotation. The weak isospin (marked as 3 weak bosons W+ exchanges, and in the upper middle that this exchange is from a decaying u- to a d-quark, also reversely in a next cyclic instance) for the generation of

Euclidean coordinates are marked as 15 (x-axis), 23 (y-axis), 46 (z-axis); vectoral arrows on them mean that the isospin exchange between the quarks is in this direction. The rotors are actually running with three motors where plasma is replaced by polymer solution and a potential elliptic umbilic of catastrophe theory can be demonstrated. The nucleons rgb-graviton location on the strong sphere is on 126 and 345 spherical triangles (Figure 1).
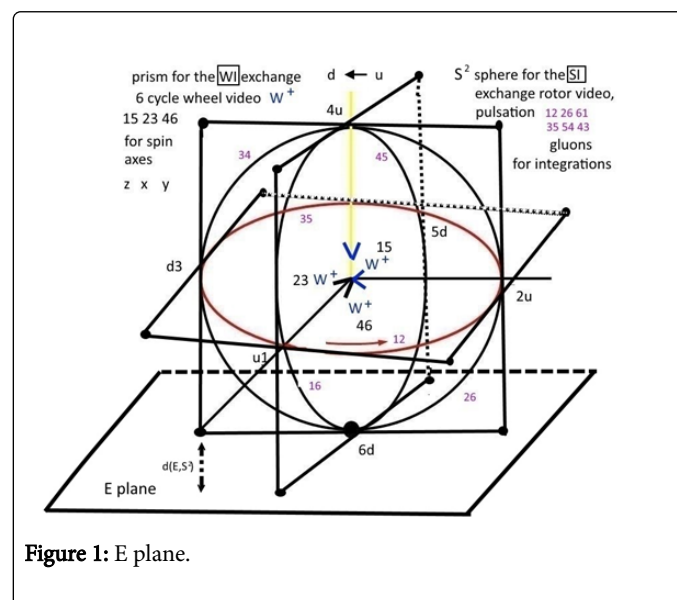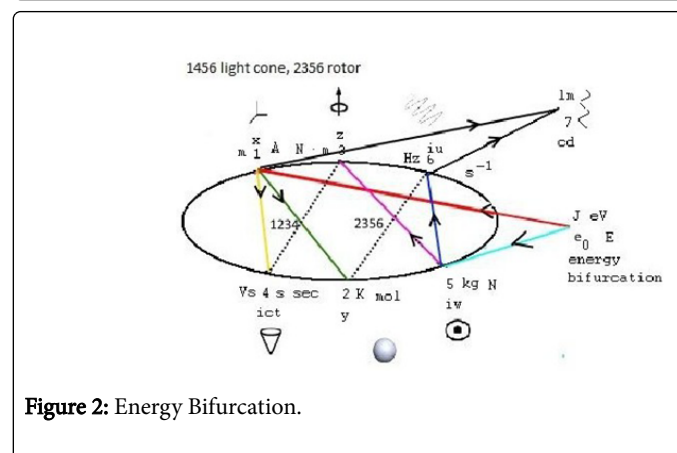

Figure 1: E plane.

Figure 2: Energy Bifurcation.

The above mentioned six energies are shown in a biological Feigenbaum bifurcation: energy vectors e0 are set on octonion coordinates 1 EM (bifurcating into 4 magnetic, 2 heat), 5 mass E(pot) ((bifurcating into 3 rotation, 6 kinetic) and 1,6 generate for light and

periodic functions a rolled Kaluza-Klein (circle) 7 coordinate. Beside the spacetime 1234 are SI in octonions my subspace 2356. Another 4-dimensional subspace for the electromagnetic interaction in my bifurcation diagram is 1456. The e0 octonion is a Higgs boson input vector which generates as compass the six colour charges (Figure 2).

The colour charges cc are polar caps 1 cc red, 5 cc turquoise, 2 cc green, 3 cc magenta, 4 cc yellow, 6 cc blue, covering a deuterons closure and carry polar vectors for its inner energy exchange with the environment (next figure). Other Figures: At left the half cones are from an SI rotor whose blue momentum vector fixes the barycentre of a nucleon. At right rgb-gravitons action is shown: the nucleon is three times radius contracted by them and three times expanded by phonons (inner heat) production [2-4]. Gravity is using central projections and projective geometry (Figure 3).
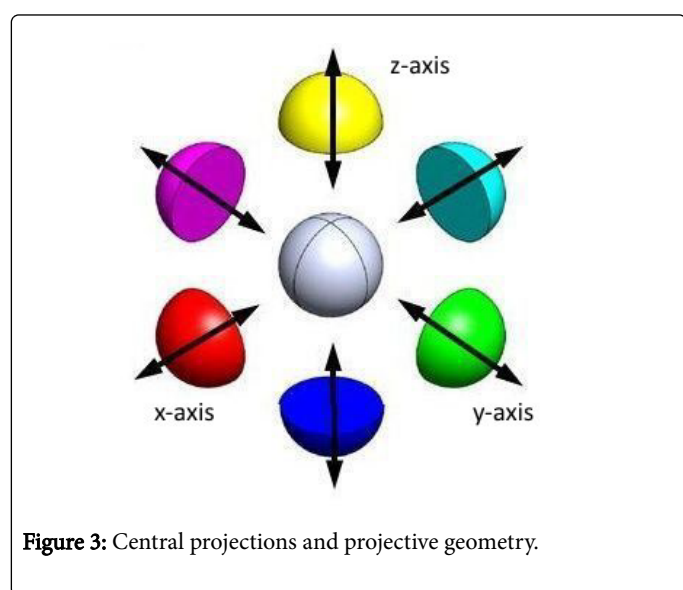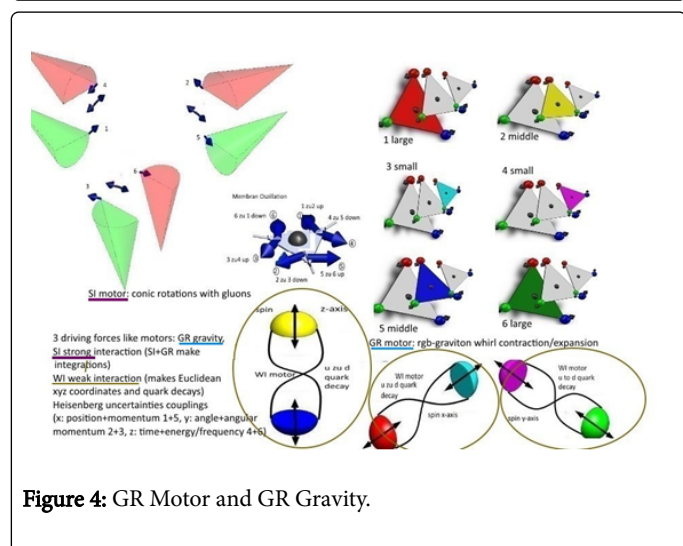
In the lower part of the former figures are weak WI decays inside a deuteron from a u- to a d-quark for an isopsin exchange between its proton and neutron. In addition, the xyz Euclidean spin/WI coordinates are generated. For generating units, the right Lissajous figure below is responsible with three projective reference points.; at left is their projective construction of a variable number Z=M for the permutation group of 4 elements. It has for the cross ratios MT invariant the nucleon triangle symmetry of order 6 (Figure 4). This is as multivalued function for the six color charges. The symmetry permutation group of four elements is factorized down to the nucleon triangle symmetry permuting three elements. This uses the Klein four group of order 4 which is the commutative version of the weak SU (2) symmetry. The strong SU (3) has as geometry the SU(2) Hopf 3-sphere as trivial fibre bundle added to the Schmutzer 5-sphere (Figure 5).
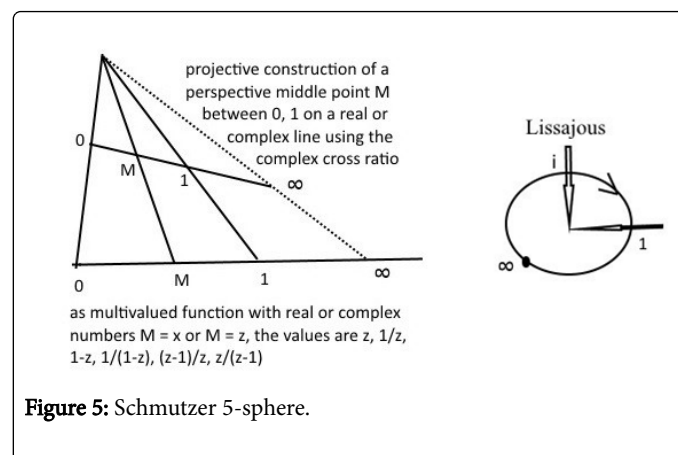

Figure 3: Central projections and projective geometry.

Figure 4: GR Motor and GR Gravity.

Figure 5: Schmutzer 5-sphere.

Conclusion

Beside the MTs symmetry, and projective and projection geometry for this 8-dimensional deuteron model are used non-commutative octonion Gleason Fano-triples 123, 145, 167, 246, 257, 347, 356 and rgb-graviton whirls for (re-)norming measurements in the sense of the Copenhagen interpretation of physics. Experiments are needed.

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