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Motley String and the Standard Model

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Statement of the Problem: All known String models (Bosonic, Super string, Heterotic) are formulated in multi-dimentional space time. To get to Realistic and observable 4-dimensional world requires new type of theory. To avoid all inconsistencies present in known approaches to compactification we propose "Motley string" model, which treats ALL spacial dimensions equally and complies with known experimental material.

First we formulate two postulates: Postulate 1: Every spacial dimension of String has unique intrinsic property which we call "color". Postulate 2: There is force between spacial dimensions of string such that it makes dimensions of complementary colors (Red_i, $Green_i$, $Blue_i$) interact and unite in a colorless threads perceived as observable dimensions. "Color" property of String's spacial dimensions is somewhat similar to 3 "color charges" of quarks in Quantum Chromo Dynamics, but has different meaning, since it is viewed here as intrinsic characteristic of spacial dimensions in Motley String theory corresponding to different values of string tension tensor T_i in different dimensions. String state at very high energies (early universe, Planck length about 10^{-33}cm) is such that all String spacial dimensions are in a free state similar to quark-gluon plasma of Quantum Chromo Dynamics. At lower energies (modern universe) strong color force becomes dominant and makes String's complimentary (or using classical optics term "additive") spacial dimensions (Red_i, $Green_i$, $Blue_i$) interact to form 3 threads (in case of 9+1 dimensional Superstring) which appear to be colorless from distances larger than size of baryons (proton and neutron). Spacial dimensions of additive "colors" are "glued" together.

Gluon may therefore be considered combination of excitations (Red_i, $Green_j$, $Blue_k$) of different colorful spacial dimensions with indexes (i,j,k) having different values. Therefore one might think that "quark mixing" between six known types of quarks above is related to exchange of Gluons between string's 3 colorless threads and "quark mixing angle" introduced by Nicola Cabibbo in 1963 in an attempt to explain quark mixing [14]. On the other hand Weak Force bosons (W and Z) may be considered excitations (Red_i, $Green_i$, $Blue_i$) of different colorless spacial threads of compactifed string dimensions. In a similar fashion we have 3 different types of excitations on two colorless spacial threads for electron, muon and tau leptons, and 3 more modes of excitations on single spacial colorless threads for three different types of neutrinos (electron, muon and tau neutrinos). Now if we replace QCD bosons (Gluons) with Weak force bosons (W and Z) we get exactly the same mechanism working and mixing (aka oscillating) both quarks and neutrinos! Motley String theory and idea of "colorful" spacial dimensions introduced in this article offers consistent and uniform approach to compactification problem present in ALL String models (Superstring, Bosonic, Heterotic). It eliminates inconsistencies of compactification mechanisms proposed earlier (Kaluza-Klein, Calabi-Yau manifolds, etc).

Biography

George Yury Matveev graduated from Leningrad State University, Department of Physics in 1990 with Diploma in Geophysics. Diploma thesis was "String model and computer simulation of Solar flares". His first job after graduation was Junior Researcher at Ioffe Physical Technical Institute of Academy of Sciences of USSR, Department of Plasma Physics and Astrophysics, Laboratory of Plasma-Gaso dynamics where he did research of Ion-acoustic waves in plasma. After collapse of USSR Mr. Matveev attempted to continue his education in North America. In 1994 he applied and was accepted to PhD program in Algebraic Number theory of McGill University in Montreal where he lived at the time. McGill University produced all required documents as well as PhD student ID card. But Immigration du Quebec clerk turned down application for student visa. Unable to legally continue his education Mr. Matveev returned to St. Petersburg, Russia and started working as IT consultant. Among his former IT employers were: Motorola, LGE, Nokia, Ericsson, etc. Mr. Matveev currently works as IT consultant on various projects in Stockholm, Sweden doing research in Mathematics and Physics in his spare time. Any ideas about Research and Employment positions in Science (Theoretical Physics, Math Physics, Mathematics) are Very Welcome!

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