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Motley string or from 10 to 4

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All known String models (Bosonic, Super string, Heterotic) are formulated in multi-dimensional 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 special dimensions equally and complies with known experimental material. First we formulate two postulates: (1) Every special dimension of string has unique intrinsic property which we call color and (2) there is force between special dimensions of string such that it makes dimensions of complementary colors (Red, Green, Blue) interact and unite in a colorless threads perceived as observable dimensions. Color property of string's special 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 special 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 special 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) special dimensions (Red, Green, Blue) 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). Special dimensions of additive colors are glued together. Outside of Planck energy scale special dimensions are confined in colorless 3-dimensional threads. Since in our model all special dimensions are treated uniformly we avoid questions like: Why some special dimensions are compactified while others are not? Also there are no standing waves in curved dimensions of Klein compactification and therefore no extra mass values (Kaluza-Klein tower). Equally important there is no need for Calabi-Yau and somewhat artificial large extra dimensions models invented to explain unseen special dimensions. Motley String theory and idea of colorful special 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.). Also it solves several major problems present in the Standard Model and Cosmology like; explains number of particle generations (6 quarks and 6 leptons) of standard model and quark/gluon confinement, explains fractional charges of quarks, establishes the link between multi-dimensional string theories and observable 4-dimensional world, offers alternative to Higgs mechanism for particles mass generation and thus explains neutrino's mass and experimentally observed neutrino oscillations and offers solution for dark matter/energy problem of modern astrophysics.

Biography

George Yury Matveev has graduated from Leningrad State University, Department of Physics in 1990 with Diploma in Geophysics. He has joined as Junior Researcher in Ioffe Physical Technical Institute of Academy of Sciences of USSR, Department of Plasma Physics and Astrophysics, where he did research of ion-acoustic waves in plasma. He currently works as IT Consultant on various projects in Stockholm, Sweden doing research in mathematics and physics in his spare time.

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