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## Motley string or from 10 to 4

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ll known string models (Bosonic, Superstring, Heterotic) are formulated in multi-dimensional space-time. To get to A realistic and observable four-dimensional world requires a 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 a known experimental material. First, we formulate two postulates: Postulate 1: Every spacial dimension of string has a unique intrinsic property which we call color. Postulate 2: There is a force between spacial dimensions of string such that it makes dimensions of complementary colors (Redi, Greeni, Bluei) interact and unite in a colorless thread perceived as observable dimensions. Color property of string's spacial dimensions is somewhat similar to three color charges of quarks in quantum chromodynamics, but has a 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 Ti in different dimensions. String state at very high energies (early universe, Planck length about 10-33cm) is such that all string spacial dimensions are in a free state like quark-gluon plasma of quantum chromodynamics. At lower energies (modern universe) strong color force becomes dominant and makes string's complimentary (or using classical optics term "additive") spacial dimensions (Redi, Greeni, Bluei) interact to form three 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. Outside of Planck energy scale, spacial dimensions are confined in colorless three-dimensional threads. Since in our model all spacial dimensions are treated uniformly we avoid questions like why some spacial 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 spacial dimensions. Motley string model and an idea of colorful spacial dimensions introduced in this article offer consistent and uniform approach to compactification problem present in all String models (Superstring, Bosonic, Heterotic). It eliminates inconsistencies of compactification solutions proposed earlier (Kaluza-Klein, Calabi-Yau manifolds). Also, it explains quark/gluon confinement and many elementary particle generations (6 quarks and 6 leptons) of standard model. At the same time, our model explains dark matter/energy puzzle of modern astrophysics.

## **Recent Publications**

- 1. Matveev Yury (1996): "Elliptic Curve Triangulation": http://matveev.se/math/tec.htm
- 2. Matveev George (2015) "Rational Points on Elliptic Curve and GYM algorithm": http://matveev.se/math/rpec.htm
- 3. Matveev George (2017): "Elliptic Curve ABC ansatz": http://matveev.se/math/EllipticCurveABC.thm
- 4. Matveev Yury (2009): "Motley String or from 10 to 4": http://matveev.se/math/motleystring.htm

## **Biography**

George Yury Matveev has graduated from Leningrad State University, USSR in 1990 with Diploma in Geophysics and his diploma thesis was entitled as String Model and Computer Simulation of Solar Flares. His first job after graduation was Junior Researcher in loffe 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. He started working as IT consultant in St. Petersburg, Russia. Among his former IT employers were: Motorola, LGE, Nokia, Ericsson, etc. 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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