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Understanding nature with the spin-charge-family theory

How far has so far the Spin-Charge-Family theory succeeded to explain the Standard Model assumptions, the matter-antimatter asymmetry, the appearance of the Dark Matter, making several predictions.

More than 40 years ago the standard model made a successful new step in understanding properties of fermion and boson fields. Now the next step is needed, which would explain what the standard model and the cosmological models just assume

- a) The origin of quantum numbers of massless one family members.
- b) The origin of families.
- c) The origin of the vector gauge fields.
- d) The origin of the Higgses and Yukawa couplings.
- e) The origin of the dark matter.
- f) The origin of the matter-antimatter asymmetry.
- g) And several other open problems.

The spin-charge-family theory, a kind of the Kaluza-Klein theories in $(d=(2n-1)+1)$ space-time, with $d=(13+1)$ and the two kinds of the spin connection fields, which are the gauge fields of the two kinds of the Clifford algebra objects anti-commuting with one another, is promising to provide this much needed next step. The talk presents: i. A short presentation of this theory with several proofs added. ii. The review over the achievements of this theory so far, with some not yet published achievements including. iii. Predictions for future experiments.

Recent Publications

1. N.S. Mankoc Borstnik, "Can spin-charge-family theory explain baryon number non conservation?", Phys. Rev. D 91 (2015) 6, 065004 [arXiv:1502.06786v1],
2. N.S. Mankoc Borstnik, "Spin-charge-family theory is offering next step in understanding elementary particles and fields and correspondingly universe", J. Phys.: Conf. Ser. 845 (2017) 012017, [arXiv:1607.01618],
3. D. Lukman, N.S. Mankoc Borstnik, "Vector and scalar gauge fields with respect to $d=(3+1)$ in Kaluza-Klein theories and in the spin-charge-family theory", Eur. Phys. J. C, 77 (2017) 231, [arXiv:1604.00675].
4. N.S. Mankoc Borstnik, H.B.F. Nielsen, "The spin-charge-family theory offers understanding of the triangle anomalies cancellation in the standard model", Fortschritte Der Physik - Progress of Physics, (2017) 1700046 [arXiv:1607.01618],

Biography

N S Mankoc Borstnik born in Buenos Aires in Argentina to Slovenian parents, she did her Ph.D. in physics 1974, University of Ljubljana. In 1975 she worked as an Assistant Professor, 1981 as an Associate Professor, 1986 (Full) Professor in Department of Physics of University of Ljubljana. In 1996 she was a Professor with a special status (with maximal number of points), University of Ljubljana, Department of Physics and from 1999-2004 she was a Founder and director of the Primorska Institute for Natural Sciences and Technology, Koper, Slovenia.

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