## **Cosmological fundamental interactions and Super Symmetry**

U. V. S. Seshavatharam\* Honorary faculty, I-SERVE, Alakapuri Hyderabad-35, AP, India. Email: seshavatharam.uvs@gmail.com Prof. S. Lakshminarayana\*\* Dept. of Nuclear Physics, Andhra University Visakhapatnam-03, AP, India. Email: Insrirama@yahoo.com

Abstract: In our earlier published papers [1-18] we suggested that: 1) At any time Hubble length can be considered as the characteristic 'electromagnetic' and 'gravitational' interaction range. 2) There exist three cosmological variables in the presently believed atomic and nuclear physical constants and with reference to the increasing cosmic time, 'rate of change' in their magnitudes, the absolute cosmic rate of expansion can be understood. 3) Magnitudes of nuclear charge radius, inverse of the Fine structure ratio and the reduced Planck's constant seem to increase with cosmic time whereas there will be no change in the magnitude of Planck's constant. 4) Atomic gravitational constant seems to be squared Avogadro number times the 'classical' gravitational constant. 5) Fermion-boson mass ratio seems to be close to 2.26 but not unity and all the observed mesons seem to be SUSY bosons only. 6) There exist integral charge quark family particles and integral charge Higgs family particles. With these concepts it is possible to develop a consistent model of physics that connects the micro physics and macro physics in a trouble-free solid approach.

## References

- U. V. S. Seshavatharam, S. Lakshminarayana, Hubble Volume and the Fundamental Interactions, International Journal of Astronomy, Vol. 1 No. 5, 2012, pp. 87-100.
- [2] U. V. S. Seshavatharam, S. Lakshminarayana, B.V.S.T. Sai. Is red shift an index of galactic 'atomic light emission' mechanism? International Journal of Physics, Vol. 1, No.3, 49-64, (2013).
- [3] U. V. S. Seshavatharam and S. Lakshminarayana. Is Planck's constant a cosmological variable? International Journal of Astronomy, 2(1): 11-15
- [4] U. V. S. Seshavatharam. Physics of rotating and expanding black hole universe. Progress in Physics. April, p 7-14, (2010).
- [5] U. V. S. Seshavatharam and S. Lakshminarayana. Black hole Cosmos and the Micro Cosmos. International Journal of Advanced Astronomy, 1 (2) (2013) 37-59.
- [6] U. V. S. Seshavatharam and S. Lakshminarayana. The reduced Planck's constant, Mach's principle, cosmic acceleration and the Black hole universe. Journal of Physical Science and Application 2 (10) (2012) 441-447.
- [7] U. V. S. Seshavatharam, S. Lakshminarayana. Microscopic Physical Phenomena in Black Hole Cosmos Rotating at Light Speed. Prespacetime Journal. October 2013, Volume 4, Issue 9, pp. 884-922.
- [8] U. V. S. Seshavatharam. Light speed rotating black holes: The special holes. International Journal of Advanced Astronomy. 1 (1), 13-20 (2013).
- [9] U. V. S. Seshavatharam and S. Lakshminarayana, Role of Avogadro number in grand unification. Hadronic Journal. Vol-33, No 5, 2010 Oct. p513

- [10] U. V. S. Seshavatharam and S. Lakshminarayana, To confirm the existence of atomic gravitational constant. Hadronic journal, Vol-34, No 4, 2011 Aug. p379.
- [11] U. V. S. Seshavatharam and S. Lakshminarayana. Nucleus in Strong nuclear gravity. Proceedings of the DAE Symp. on Nucl. Phys. 56 (2011) p.302.
- [12] U. V. S. Seshavatharam and S. Lakshminarayana. Molar electron mass and the basics of TOE. Journal of Nuclear and Particle Physics 2012, 2(6): 132-141
- [13] U. V. S. Seshavatharam and S. Lakshminarayana. Logic Behind the Squared Avogadro Number and SUSY International Journal of Applied and Natural Sciences. Vol. 2, Issue 2, May 2013, 23-40.
- [14] U. V. S. Seshavatharam and S. Lakshminarayana.. Strong nuclear gravity - a brief report. Hadronic journal, Vol-34, No 4, 2011 Aug.p.431.
- [15] U. V. S. Seshavatharam and S. Lakshminarayana, Super Symmetry in Strong and weak interactions. Int. J. Mod. Phys. E, 19(2): 263, 2010.
- [16] U. V. S. Seshavatharam and S. Lakshminarayana. SUSY and strong nuclear gravity in (120-160) GeV mass range. Hadronic journal, Vol-34, No 3, 2011 June, p.277
- [17] U. V. S. Seshavatharam and S. Lakshminarayana. Integral charge SUSY in Strong nuclear gravity. Proceedings of the DAE Symp. On Nucl. Phys. 56: 842, 2011.
- [18] U. V. S. Seshavatharam and S. Lakshminarayana. Role of SUSY in finding the equivalent term for the first three terms of the semi empirical mass formula. Proceedings of the DAE Symp. on Nucl. Phys. 58 (2013). Page 282.

Cell No's: \*(91) 81060 85844 and \*\*(91) 94405 57613