MAGIC

Science of the Cosmos

Contribution ID: **16** Type: **not specified**

On the possible role of Planck length in nuclear physics

Considering our 4G model of final unification, we have noticed a simple relation for Planck length in terms of nuclear physical constants. It's published version can be expressed as, $\sqrt{\frac{G_N\hbar}{c^3}} \cong \left(\frac{m_p^2}{(m_n-m_p)m_e}\right)\left(\frac{2\pi R_0^2}{3ct_n}\right) \cong \left(\frac{m_p^2}{(m_n-m_p)m_e}\right)\left(\frac{V_0}{2R_0ct_n}\right)$ where $R_0 \cong 1.24$ fm, $V_0 \cong \frac{4\pi}{3}R_0^3$ and $t_n \cong$ Neutron lifetime. This relation seems to be more simple and more meaningful compared to all available unified relations in current physics literature. Based on this relation, there is a scope for understanding the role of Planck scale in nuclear physics. This relation seems to highlight the importance and accuracy of the nuclear charge radius and neutron lifetime. We are working in this direction. We appeal the science community to circulate and recommend our work for further research.

Author: UTPALA VENKATA, Satya Seshavatharam (1Honorary faculty, I-SERVE, Survey no-42, Hitech city, Hyderabad-84,Telangana, India 2Quality Assurance Dept, Casting, DIP Division, Electrosteel Castings Ltd, Srikalahasthi, AP, India.)

Co-authors: Prof. T, Gunavardhana Naidu (Dept. of Physics, Aditya Institute of Technology and Management, Tekkali-532201, AP, India); Prof. S, Lakshminarayana (Dept. of Nuclear Physics, Andhra University, Visakhapatnam-03, AP, India)

Presenter: UTPALA VENKATA, Satya Seshavatharam (1Honorary faculty, I-SERVE, Survey no-42, Hitech city, Hyderabad-84,Telangana, India 2Quality Assurance Dept, Casting, DIP Division, Electrosteel Castings Ltd, Srikalahasthi, AP, India.)