



## Editorial

It is indeed a great pleasure and privilege for me to introduce the current issue of *Mapana Journal of Sciences* which is committed in publishing original and novel research and review articles from Physical Sciences. *Mapana* provides the authors a platform to submit note-worthy research articles in the field of Theoretical Physics, Astrophysics and Material Sciences.

In this issue, we publish five articles pertaining to Nuclear Physics, Astrophysics and Nanocarbon Materials which probe into the nuances of the respective field. We appreciate and acknowledge all the authors for their valuable contribution to the Journal

U V S Seshavatharam and Srirama Lakshminarayana in their novel work proposed the existence of three large atomic gravitational constants which are assumed to be associated with electroweak, strong and electromagnetic interactions. The study reveals that Electroweak field operated by a primordial massive fermion of rest mass energy 585 GeV as Zygote of all elementary particles and galactic dark matter. The study propose that H-bar is the compactified outcome of unified electroweak gravity.

In the article on “Be star: Messenger of Stellar Physics”, Gourav Banerjee and co-workers elaborated the formation mechanism of Be stars and massive disk around it. Be stars provide excellent opportunity to study circumstellar disk, whose formation mechanism is still not clearly understood. Study of spectra from these types of stars provides important insight regarding the geometry and kinematics of the disk. The research team from CHRIST (Deemed to be University) and Indian Institute of Astrophysics, Bengaluru reflect the various observable properties of Be stars, effect of metallicity on the properties and major breakthroughs till date through this article.

U V S Seshavatharam and Srirama Lakshminarayana make an attempt to understand the nuclear stability and binding energy through the article “Understanding nuclear stability and binding energy with powers of the strong coupling constant”. Nuclear stability and binding energy relationship between nuclear force

and strong force is a grey area. This concept is a challenging task for researchers worldwide.

Anu N Mohan and Manoj Balachandran, in their article titled “Facile green synthesis of novel nanocarbon materials from agricultural waste” describes synthesis of porous graphene sheets from agricultural derivatives like wood and coconut shell charcoal. The study reported chemical extraction of few layer graphene sheets from carbonized agricultural waste. This work is part of the ongoing research on the antibacterial efficacy of the nanocarbon derived from low cost and abundantly available precursors.

Adoption of more environment friendly means of harnessing and storing energy while minimizing harmful effects on the environment is of great social implication. The review article by Imran et al., elaborates a review about the significance of supercapacitors as a means of energy storage. Greater capacitance value is achieved by higher surface area of electrode, thinner dielectric material and more porosity. Graphene being a novel material has all the quoted advantages required for a supercapacitor. The review mainly focusses on the mechanism for storing energy, types of materials used in capacitors, its applications and research development in the field.

We are delighted to find that these articles are of social relevance and have implemented novel thoughts. Let this journey in pursuit of knowledge be an enriching experience for all our readers.

**Manoj Balachandran**

Section Editor