

EDITORIAL

We are ready with another interesting issue of the Journal. We are carrying papers of scholars from our own Mewar University, Central University of Gujarat, Jawaharlal Nehru University, Central University of South Bihar, University of Kashmir, Srinagar; Mithibai College of Arts, Mumbai; CCS University, Meerut. Thus, we are able to bring together scholars from north and south, east and west. Scholarship cannot bloom if there are isolated communities of scholarship. We are into Network Age. Network is the buzzword everywhere. Astrophysicists are working on Network cosmology, engineers and architects are designing networks of sensor- based smart technology and management sciences grapple with network marketing.

But, by creating silos of academic communities, can we ever aspire to become a global knowledge power? India had world-famous centre of learning like Taxila, Nalanda and Vikramshila. Why was it so? Because they allowed synthesis of knowledge. They allowed scholars from different regions to come together and exchange their thoughts in a liberal atmosphere. In the current issue, we are carrying a paper by two scholars from Central University of South Bihar, Gaya on Vikramshila University. It was one of the major centers of high learning in India during medieval age. Acharya Buddha Jnanapada, was appointed as the first Acharya by King Dharmapala (r.774-806) for ordination at Vikramshila. Vairochana Rakshita, Jetari, Prajnakaramati, Ratnakarasanti, Jnana Sri, Ratnavajara, Vagishvarakirti, Acharya Atisha, Abhyankargupta, Tathagatrakshita, and Manjusri were remarkable scholars who thrived in Vikramshila University. The Panditas would be invited to Java and Tibet, Pegu and Ceylon and across Indic region for spreading the light of their wisdom. But, where do we stand today? We no longer have any university in the top 100 universities of the world!

We drumbeat about our achievements in mythic past and ignore the efforts, devotion and teamwork required today to realize our potential as a prominent place of learning. We are enamoured by the optics of academics and neglect the commitment required for establishing new theories. We hardly have organic and/or serious intellectuals of global acclaim. Rather than harping upon our contribution to the world knowledge system, we should begin from a particular point.

Since India is known for its yantras and mandalas, which are geometric design used during propitiation rituals, let from these sacred designs new mathematics and new engineering arise. Sriyantra, the king among Hindu Yantras is built upon triangles and the Golden number Phi, while the Kalacakra Mandala, the king of Buddhist mandalas is built upon the quadrilaterals (squares, trapezoids and so on) and Pi. If isosceles

triangles are primary building blocks of the Sriyantra, the trisosceles trapezia are the building block of Kalacakra mandala. Both geometric designs significantly appear as expression of continued fraction. In recent years, the mathematics of Metallic Means has been developed by Latin American mathematicians and is increasingly adopted by the universities world-wide since these metallic means, which are ratio of irrational numbers that can be expressed by continued fractions, are found to be in abundance in aesthetics of nature. Though, phi is well known as the Golden number, it has been found to be a mathematical constant of the simplest form of the quadratic equation in the form of $x^2 - px - q = 0$. When $p=q=1$, the value of x is that of phi. There would be different means for varying value of p , if q is kept at the value of 1. Mathematicians have identified silver, bronze, copper and other higher degree means. These mathematical constants are becoming numerical celebrities, thanks to their presence in complex design in nature and human creations. In August this year, the science journal, *Nature*, has reported about self-similar bronze-mean hexagonal quasicrystals. The symmetry and the aperiodicity of this design emerge from the irrational ratio of two sides. Sriyantra appears to be such a symmetrical, aperiodic representation of mathematical equation with solution approximating the Bronze Mean.

We boast of our mathematicians from yore. We had mathematical wizards like Srinivas Ramanujan as recently as last century who was master of the number theory. Where have our mathematicians gone? Why the geometrical designs traditionally drawn have yet not been deciphered rationally? Once these designs are deciphered, the same can be adopted in material engineering and we can have a perfect fusion of tradition and modern.

Today soft matter sciences are going to be the cutting edge technology. Much of soft matter system follows metallic means rather than magical numbers like e and π . Innovations should crop from our own knowledge base. But, we cannot close our window and stop the fresh breeze of ideas from scintillating our minds. The chimerization of knowledge that was practised in the precinct of Nalanda and Vikramshila is the leitmotif of the Network Society. Let there be epistemic dialogue of old and new, east and west, north and south, among different disciplines as well as between empirical science and pragya. Only the edifice of dialogue can sustain the Hope of better future for the mankind.

— **Niraj Kumar**
Honorary Editor