



(NSSEMA -2023)

**2<sup>nd</sup> National Conference on  
Signal Processing, Sustainable Energy Materials  
And Astronomy & Astrophysics  
March 16-18, 2023**

**SoS in Physics & Astrophysics and SoS in Electronics & Photonics  
Pt. Ravishankar Shukla University, Raipur, 492010, (C.G) INDIA  
&  
Luminescence Society of India**

## Technical Report

2<sup>nd</sup> National Conference on Signal Processing, Sustainable Energy Materials and Astrophysics (NSSEMA-2023) was organized by School of Studies in Physics and Astrophysics, School of studies in Electronics and Photonics, Pt. Ravishankar Shukla University, Raipur with Collaboration with Luminescence Society of India. It was three days National Conference held during 16<sup>th</sup>- 18<sup>th</sup> March, 2023.

The Conference on 16.03.2023 is inaugurated by chief guest honourable Prof. K.L. Verma, Vice Chancellor, Pt. R. S. University, Raipur; Guest of Honour, Prof. A.G. Ramakrishnan, IISc, Bangalore and Prof. S.K. Pandey, Former Vice-chancellor, Pt. R.S.University, Raipur and President of LSI, Prof. KVR Murthy, MS University, Baroda. After the formal inauguration, Prof. Nameeta Brahme, convener of the conference gave the welcome Address and Prof. Kavita Thakur talk about the conference.



### **Technical Session-1**

The first day of the conference starts with Keynote Speaker, Prof. KVR Murthy, LSI President on the title “Luminescence Materials and Applications. Prof. Murthy explained the different types of luminescence and how we can obelise the luminescent materials in our day to day life. There are two plenary talks first by Prof. KVR Chary, Rowan University, USA on the topic “Physics and Chemistry of Magnetism at Nano-Scale”. Prof. Chary has explained the fundamental of magnetism and the use of magnetic nano particles in the field of medical science. Prof. G.C. Anupama, IIA, Bangaluru delivered second plenary talk on the topic “Thermonuclear Supernovae as Cosmological Probes”. Prof. Anupama told that supernovae play an important role in the distance measurement. We can study about the history as well as future of the Universe. She also told that these are very important objects to understand the dark matter and dark energy. This session was chaired by Prof. B.N. Jagatap from IIT Mumbai and Prof. Y.H. Gandhi from MS University, Baroda.



### Technical Session-2

In this session, Invited talks were delivered by Prof. Banerjee, ARIES, Nainital, on the topic “ADITYA L1 Mission to study the variability of our nearest Star”. Prof. Dipanker Banerjee told that Aditya L1 will be India’s 1<sup>st</sup> mission to the sun and it will be an important mission to study the sun. Prof. B.N. Jagatap, IIT Mumbai delivered a talk on the topic “Materials for Sustainable Development: Challenges and Opportunities”. Prof. Jagtap told that we have to save environment for the survival of life on the earth. Prof. P.D. Sahare from Delhi University talked about the importance of Mechnoluminescence. One invited technical talk was delivered by Dr. Rekha Garg, Dr. H.S. Gour University, Sagar. This session was chaired by Prof. Jagjeet Kaur Saluja, Durg Science College, Durg.



### Technical Session-3

This session was held parallel in which Invited talk was delivered by Prof. A.G. Ramakrishnan, IISc, Bangalore. Prof. Ramakrishnan explained the patterns in EEG and consciousness. Prof. G.V.V. Sharma, IIT, Hyderabad explained the importance of signal processing giving the simple example of high school mattematics and physics. One Invited Technical talk was delivered by Dr. Narendra D Londhe, NIT, Raipur. This session was chaired by Prof. D.P. Bisen, SoS in Physics and Astrophysics, Pt. R. S. University, Raipur (CG).



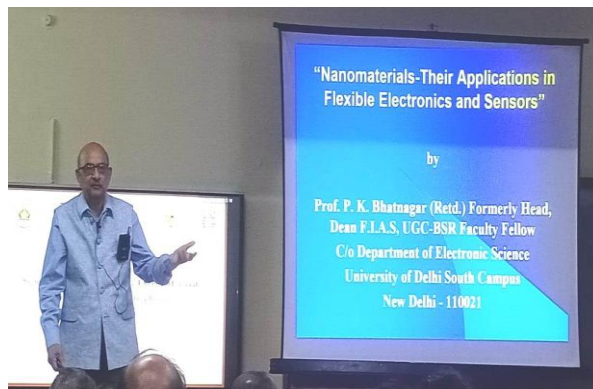
In the first day of the conference, 12 oral presentations were delivered by participants and Cultural event is also organized where students of M.Sc. Physics and Electronics have performed the dance form of Chhattishgarh. Some solo Bharatnatyam has also performed.



## Second Day 17.03.2023

### Technical Session-4

The Second Day opened with Invited talk by Prof. B.S.Panigrahi, IGCAR, Kalpakkam on the topic “Effect of  $\text{UO}_2^+$  on Europium valence and interalial energy transfer in  $\text{SrBPO}_5$ ”. Prof. Panigrahi explained the method and use of  $\text{UO}_2^+$ -based luminescent material. He also told that by changing the Uranium to Europium concentration ratios the phosphor can be tuned to different CIE coordinates. Prof. P.K. Bhatnagar, Delhi University, New Delhi talked about nano materials and their applications in flexible electronics and sensors. This session was chaired by Prof. Anjali Oudhia and Dr. Ravi Sharma.



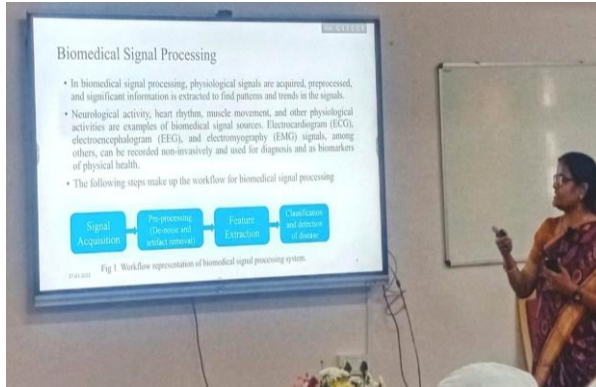
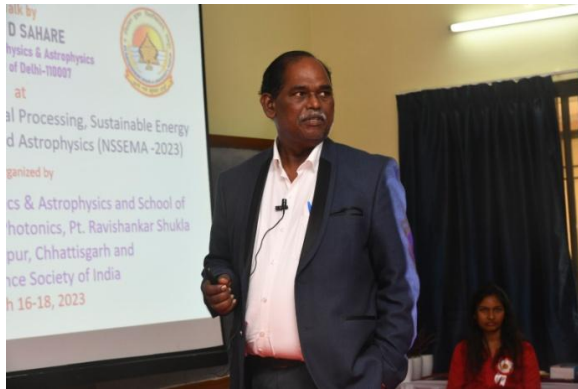
### Technical Session-5

This Session starts with Invited talks by Prof. S.J. Dhoble, RTM Nagpur University talked about innovation application of fly ash for high dose Thermoluminescence radiation dosimetry. Prof. S.A. Hasmi, Delhi University talked about redox active gel polymer electrolytes for high energy storage. Prof. Sivakumar Vaidyanathan, IIT, Hyderabad explained the lanthanide based luminescent materials for smart lightings. Invited technical talk was delivered by Prof. Rakesh Chandran S.B, SD College, Allappuzha, Dr. Rohit Raja, GGU Bilaspur and Dr. Jay Singh, GGU, Bilaspur. The session was chaired by Prof. Kamlesh Shrivastava, SoS in Chemistry, Pt. R.S U Raipur and Prof. C. Sivakumara, IISc Bangalore.



### Technical Session-6

In the first Invited talk of parallel session Prof. S. K. Omanwar, Amravati University, Amravati, talked about energy efficient QC-luminescent materials for sustainable developments. Prof. K. K. Biswas, IIT Delhi talked about disease identification in agriculture using deep heavy on edge devices. Prof. Dipti Patra, NIT Rourkela, talked about biomedical signal processing and analysis techniques and its application to ECG signal. After that invited technical talk were delivered by Dr. M. Shrinivas, MS University Baroda, Dr. Sapna Singh Kshatri,SSIPMT, Raipur and Prof. R. P. Patel, GGU Bilaspur. The session was chaired by Prof. R. N. Baghel, SoS in Physics and Astrophysics, Pt. R. S. University, Raipur (CG).



### Technical Session 7 and 8

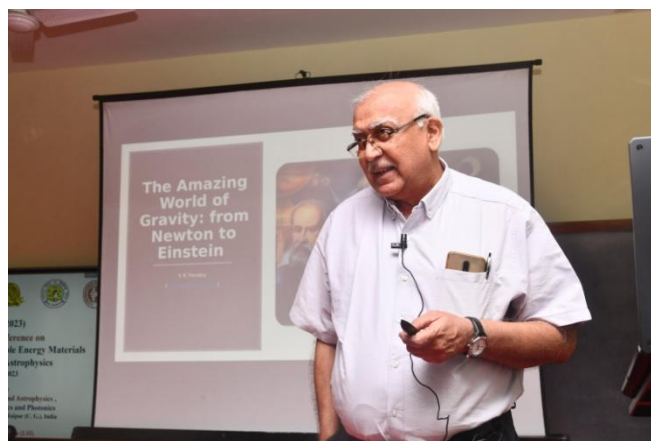
In this session three invited technical talks delivered by Dr. M. L. Verma, Shri Shankaracharya College Bhilai. Dr. Shalinta Tigga, GGU Bilaspur explained the synthesis and characterisation of luminescent material and Dr. Pawan Patnayak, BIT Durg. The session was chaired by Prof. Y.H. Gandhi and Prof. M. Srinivas from MS University Baroda. In the second days of conference total 12 oral presentations were delivered and around 70 posters were displayed by participants.



### Third Day 18.03.2023

#### **Technical Session-9**

The Third Day of conference was started by Invited talk of Prof. R. K. Pandey, Amity University, Raipur on the topic “Oxide Nano Structures: Novel Properties and applications” explained the role of nano particles, its properties and application in the field of materials science. Prof. S. K. Pandey, Former VC, Pt. R.S. U. Raipur, explained the evolution of astronomy from Newton to Einstein. The planetary motion can be explained well by Newton’s theory of gravitation. Later on Einstein reformed the theory using general theory of relativity. The GTR is based on the space time curvature. There are several predications of GTR, all of which have been verified. The session was chaired by Prof. R. C. Agrawal, SoS in Physics & Astrophysics, Pt. R.S. University, Raipur and Dr. Ram Ashish Chouksey, DRDO, New Delhi.



#### **Technical Session-10**

The session was started by Invited talk of Prof. C. Shivakumara, IISc, Bangalore. He talked about multifunctional materials for Energy and Environmental Sustainability. Prof. G. R. Sinha, IIIT, Bangalore explained the objective of Indian Knowledge system and its role in sustainable health and Dr. O. P. Thakur, SSPL, DRDO, New Delhi explained the use of silicon carbide in High power and high frequency devices. In the session Invited technical talks delivered by Dr. Tanmay Badapanda, CV Raman University, Bhubhaneshwar and by Dr. G. Nag Bhargavi, Govt. College Dharsiwa. The session was chaired by Prof. Shadhana Agrawal, NIT, Raipur.



#### **Technical Session-11**

The Session was started by Invited talk by Prof. Neelam Sinha, IIIT, Bangalore on the topic “Surgical Video Analysis using Deep Learning”. She explained the surgical video analysis using deep learning and about role of components in modern health care sector. Prof. Bipin Gupta, CSIR-NPL, New Delhi explained the role of luminescent materials for social benefits and to make self-reliant India. In the session Invited technical talk delivered by Prof. Y.H. Gandhi, M.S.University, Baroda, Prof. Ayush Khare, NIT, Raipur and Dr. Ishwar Prasad Sahu, IGNTU, Amarkantak. This session was chaired by Dr. Preeti Bala Taunk, Govt. Digvijay College, Rajnandgaon.

## Technical Session-12

The Session was started by Invited technical talk by Dr. Bikesh Kumar Singh, NIT, Raipur explained the brain network analysis and Dr. Laxmikant Chaware, CBS, Pt. RS University explained the techniques to detect the low surface brightness galaxies. He also explained the role and importance of these galaxies in understanding the Universe. This session was chaired by Dr. Bhuneshwar Verma, Science College, Raipur.

In the third day of conference total 12 oral presentations was delivered by participants.

On Valedictory function, Secretary of the conference Dr. N.K. Chakradhari has delivered brief report of the conference. The chief guest Prof. KVR chary has declared this conference is grand success on the basis of learning, collaboration and students' interaction and guest of honour Prof. B.S. Panigrahi has also appreciate the organizers of the conference.

In this function the best three oral and best three poster presentations have awarded with cash price sponsored by LSI. Dr. Y.K. Mahipal gave vote of thanks on behalf of organizing committee.



*Nameeta*

Convener (NSSEMA-2023)  
Prof. Nameeta Brahme (Prof. & Head)  
SoS in Physics & Astrophysics  
Pt. Ravishankar Shukla University, Raipur