

## **Reports of the International Conference (ICANOPA-2020):**

A three days **INTERNATIONAL CONFERENCE ON ADVANCES IN NANO OPTOELECTRONICS AND ITS APPLICATIONS (ICANOPA-2020)** was held successfully at the department of Physics, Rajiv Gandhi University, Rono Hills from 12<sup>th</sup> to 14<sup>th</sup> October 2020. In the conference there were more than 100 participants applied for the conference out of which 53 participants were selected for oral and poster presentations mostly from all over our country.

On the 12<sup>th</sup> October 2020 Monday, the conference was graced and inaugurated by our honorable Vice chancellor, Prof. Sekat Kushwaha where he stressed on the suitable explanation of the time with the help of bottle neck effect tunnel approach beautifully. Further Vice chancellor, Registrar of the University, Dr. N.T.Rikam raised our concerns over the unprecedented situation of covid-19 and requested all researchers to play vital role to contribute suitable solutions for the prevailing covid-19 situations. Prof. Amitav Mitra, Pro Vice Chancellor of RGU well explained how the physics is linked with the economics. He highlighted the importance of Physics and its association with economics to solve the recent time problems in economics. **Prof. Amarjyoti Choudhary-former Vice Chancellor of Gauhati University and Pro-VC of Tezpur University** gave a virtual key note address entitled “*Semiconductor Nanomaterials for Magnetic and Optoelectronic Applications*” in the inaugural secession of the conference. He discussed the fundamentals of nanoscience and nanotechnology and highlighted the ongoing research work in recent times related to nanotechnology that should be given more emphasized to meet the modern requirements to address the unsolved problems of life. Prof. Choudhury also discussed the key role now playing by present day nanotechnology for drug production especially in this pandemic era..

Earlier Prof. P K Kalita, Convener of the conference gave the welcome address and highlighted the objectives of this International conference to the dignitaries and participants. He pointed out the recent trend of development in nano-optoelectronics and its future prospects. Prof. Sanjeev Kumar, HOD of Physics spoke on the relevance of nano-optoelectronics in recent times on this occasion. An *E-Abstract book* was also formally launched by Vice-Chancellor, Prof. Saket Kushwaha in the inauguration function. The Vote of Thanks was delivered by Dr. H Shanjit Singh, Joint coordinator of the conference.

All the 11 invited speakers delivered their talks as per program schedule in the conference for three days. We kept for break time for participants and invited speakers to run the virtual program properly.

### **Day-1**

In the first day after the inaugural function, three different invited talks were delivered by two professors from India and one from USA on different themes. All the participants were given time for open questions from the invited speakers and they had good discussions.

In the first invited talk, were given by **Prof. K.K. Chattopadhyay, Jadavpur University, India** on the topic “*Valence band engineered metal oxide nanomaterials for transparent electronics*”. Prof K.K. Chattopadhyay highlighted the present research in synthesis, characterization, and applications of transparent oxide nanomaterials. All the participants were very much interested as per their comments in the chat box and direct open questions in his talk and made several queries to know the frontlines of research area which were addressed by Prof Chattopadyay had meaningful discussions.

The second invited talk “*Towards optical super resolution in a scanning optical microscope*” was presented by **Prof. Basanta R Baruah, IIT, Guwahati** where he stressed on the importance of confocal microscopy, its recent developments and the scope as potential characterization technique in material science. In the third invited talk, **Dr. Samaresh Guchhait, Howard Univeristy, Washington DC, USA** delivered on the theme “*Molecular Modelling is a Killer Application of Quantum Computing*”. He explained about the classical computer memory storage with the help of bit and qubits. The difficulties in imaging biological proteins were highlighted in his talk. All the participants had good discussion in his talk.

We had *Technical session-1* under chairperson **Prof. Kanak Chandra Sarma, Guwahati University, India**. Altogether 9 presenters were giving their presentations on different areas. The Chairperson and convener monitored their talks and questioned on their works and made a useful discussion upon their ongoing research.

## Day 2

As per our conference schedule, in the morning session, we had special invited speaker, **Dr. Gowhar Ahmad Naiko, Dhofar University, Sultanate of Oman**. He delivered a one hour talk on “*Hybrid Nanoporous Composite Materials for the development of 4<sup>th</sup> Generation Non-Enzymematic Glucose Sensors*”. Later on participants got benefited for their research works by sharing open questions and answers as per the participants’ response in chatting box and queries.

The next invited speaker was **Prof. B. Indrajit Sharma, Assam University**. Prof. Indrajit delivered on the topic “*Density Functional Theory: Material Science*” where he discussed the fundamentals of Density Functional Theory and explained the systematic procedure adopted for determination of band structure and band gap energy, band gap engineering with doping and a comparison with the experimental results.

**Dr. Kazi Haniun Maria, University of Dhaka, Bangladesh** lectured on the topic “*Formation of Metal chalcogenide thin films by Chemical Bath Deposition and an effective liquid phase exfoliation approach to prepare transition metal dichalcogenide 2D nano flakes for gas sensing applications*”. She explained to the participants about the, structural, electrical and optical properties of ZnS:Al and preparation technique through exfoliation to synthesis SnS<sub>2</sub> nano flakes.

**Prof. Pranayee Datta's** talks on “*Next Generation Circuit at Nanoscale ----From concept to Reality*” was one of the interesting topic in recent time. **Dr. Datta, a retired Professor in the Department of ECT, GU** presented the experimental works on optical nanofilter using Bandpass and bandstop in co-relation to the transmission spectra of five different samples. She explained nicely about the basic electronic elements and the recent development of another fourth element named Memristor and a transformation of conventional electronics into nan-electronics. She interacted participants and meet the questions raised especially on how the memristors can store memory and the future prospects in information technology.

In the afternoon talk **Dr. Utpal Sarkar, , Department of Physics, Assam University** gave invilated talk on “*Optoelectronic Applications of Pristine and Doped Graphyene*”.He shared his research areas on conceptual density functional theory background starting from energy of Thomas Fermi model. He explained on the H.K Theorems for the determination of the external potentials and the ground state energy and he adopted Kohn-Sham equation for knowing the ground state energy. He showed the stimulated optical properties of pristine and doped graphyne.

In second **Technical session-2**, there were 10 presenters. All presenters presented their research works on different areas. They were moderated and questioned by convener and the chairperson of day 2.

### **Day-3**

On the 3<sup>rd</sup> day in the morning session **Prof. T. Bezbaruah, Guwahati University, Assam** gave a talk on “*Nano-Opto-Electronics for Bio-Sensing and Health care Applications*” where he emphasized the mechanisms on how the biosensor works.

**Dr. Gazi Ameen Ahmed, Department of Physics Tezpur University** delivered his talk on “*Opto electronics application for image accusation*”. He explained initially about CCD-charged couple device and on the uses of MOSFET for the applications of it in imaging the astronomical objects and further explained on how MOSFET acts as a capacitor. He showed an array of 30 CCDs used the Sloan Digital Sky Survey telescope imaging camera.

**Dr. K Mohan Raj, Manonmaniam Sundaranar University, Tamil Nadu**, spoke about “PEC performance of CuAgZnSnSe<sub>4</sub> thin film by vacuum evaporation method” and highlighted the recent importance of those composites thin films for fruitful application in optoelectronic devices.

Prof. Ganesh Chandra Wary, Cotton University and Dr. Prasanta Saikia, Dibrugarh University, had conducted the **3<sup>rd</sup> and 4<sup>th</sup> Technical sessions** in the afternoon. All the papers were presented either as poster or as oral and there was a good interaction from the participants and the resource persons. The chairpersons and convener reviewed the paper presented in all the sessions and selected the prize for best poster and oral presentation.

Over hundred research scholars, faculties and scientists from all over the country participated in the conference. The participants were interacted with the resource persons and chairpersons of technical sessions with a great enthusiasm and wisdom. In the valedictory function on 14<sup>th</sup> October the vote of thanks was delivered by Dr. Upamanyu Das, Joint coordinator, ICANOPA-2020.



**INTERNATIONAL CONFERENCE ON  
ADVANCES IN NANO-OPTOELECTRONICS  
AND ITS APPLICATION (ICANOPA-2020)  
12<sup>th</sup>- 14<sup>th</sup> October, 2020**



**Department of Physics,  
Rajiv Gandhi University,  
Doimukh-781112, Arunachal Pradesh, India**

**Objectives:** The prime objective of ICANOPA-2020 is to give an online platform in this pandemic period for sharing knowledge on recent advancements in Nano-optoelectronics and its potential application. Research scholars, Scientists, Engineers and other professionals would get a scope to share their expertise and ideas in carrying out the theoretical as well experimental research in this field. The conference would give the necessary exposure to the development in synthesis routes, modulation of optoelectronic properties, device oriented research, nanoelectronics, quantum computing and other related phenomena. Researchers may also get the due scope for collaborative research at national and international levels.

**Important Dates**

Registration starts onwards: 16<sup>th</sup> September, 2020  
Abstract submission closes on: 7<sup>th</sup> October, 2020  
Notification of Acceptance: 9<sup>th</sup> October, 2020

**Registration Details**

Participants are requested to make their payments by depositing the registration fee online. The money receipt should be uploaded in the registration form.

**Link for registration:**

<https://forms.gle/EJ6T5thCtELRnc9w8>

**Bank Details**

Account No. 83420100001126  
IFSC Code: BARBOVJARUN(BARB zero VJARUN)  
Name of Recipient: HEAD, DEPARTMENT OF PHYSICS

**Registration fees**

Research Scholars: Rs. 500/-  
Faculties/Scientists/professionals: Rs. 1000/-  
(USD 30 for outside INDIA)

**About Rajiv Gandhi University**

Rajiv Gandhi University, the oldest university of Arunachal Pradesh was established in 1984, and converted to a Central University under MHRD, Govt. of India since 9 April, 2007.

**About the Department of Physics**

The department of Physics is an important constituent of the Faculty of Basic Sciences since 2011. The Department offers M.Sc and Ph.D.

courses with specialization in different fields. For more details you may visit [www.rgu.ac.in](http://www.rgu.ac.in).



**Theme area of the conference**

Research papers are invited on the following area not limited to:

Theoretical modeling of Optoelectronic properties,  
Optoelectronics of nanostructures,  
Magnetic semiconductors and alloys,  
Conducting Polymers and Nanocomposites,  
Nano-porous and Organic nanostructures,  
Nanofluids and fluid mechanics,  
Nano-optics, Optical and display materials,  
Nanophotonics,  
Transport properties and Ballistic transport,  
Photoconductivity and Opto-electronic devices,  
Nanoelectronics and Molecular Electronics,  
Quantum computing.

**Submission of Abstract**

Interested Researchers are requested to submit the Abstract of his/her unpublished paper within 300 words. Abstract must be uploaded through the Registration link.

**Abstract format**

All Texts should be typed in Times New Roman, Title size: 14-bold (centre), Authors and Affiliations: 12-bold (centre), Body of the paper: 12 (justified), Keywords: 12-bold.

**Award**

**Best oral Presentation  
Best poster presentation**

**Publication**

The presented papers will be published in UGC-CARE list journal/Book form. Detail guidelines for submission of full length paper will be supplied after the conference.

**Focus audience**

PG students, research Scholars and faculties of different Institutes, Colleges, Universities and professionals can participate in ICANOPA-2020.

**Conference Program**

All the sessions will be in **online mode**. Details will be provided to all the delegates via **WhatsApp link:**  
<https://chat.whatsapp.com/C8ex61eZpv2AdfAA88fB4q>  
email: [icanopa2020physics@gmail.com](mailto:icanopa2020physics@gmail.com)

**Local Organizing Committee**

**Chief Patron**

Prof. Saket Kushwaha, Honorable Vice Chancellor, Rajiv Gandhi University

**Patrons**

Prof. Amitabh Mitra, Pro Vice Chancellor, RGU  
Prof. Tomo Riba, Registrar i/c, RGU  
Prof. Sanjeev Kumar, HOD, Physics, RGU

**Convener**

Prof. P K Kalita, Dean, Faculty of Basic Sci. IT & Engineering

**Joint Coordinators**

Dr. Upamanyu Das, Physics Department  
Dr. H. Shanjit Singh, Physics Department

**Scientific Committee**

Prof. K K Chattopadhyya, *Jadavpur University*  
Prof. S. Dorendrajit Singh, *Manipur University*  
Prof. B K Sarma (Retd.) *Gauhati University*  
Prof. K C Sarma (Retd.) *Gauhati University*  
Prof. Ganesh Wary, *Cotton University*  
Prof. B P Modi, *V N south Gujarat University*  
Prof. B Indrajit Sarma, *Assam University*  
Prof. D Sarcar, *Gauhati University*  
Prof. T Bezbaruah, *Gauhati University*  
Dr. Gazi Amen Ahmed, *Tezpur University*  
Dr. Prasanta Saikia, *Dibrugarh University*  
Prof. Sahin Ahmed, *Rajiv Gandhi University*  
Prof. Utpal Bhattacharjya, *Rajiv Gandhi University*  
Dr. Rajesh Chakraborty, *Rajiv Gandhi University*  
Dr. Rhituraj Saikia, *Eudoxia Research Centre, Guwahati*

**Keynote Speaker**

Prof. A Choudhury, *Former VC Gauhati University & Former Pro-VC Tezpur University, India*

**Speakers:**

Prof. K K Chattopadhyay  
Department of Physics  
*Jadavpur University, India*

Prof. Pranayee Datta  
Department of ECT  
*Gauhati University, India*

Prof. Tulsi Bezbaruah  
HOD, Department of ECT  
*Gauhati University, India*

Prof. Basanta Ranjan Baruah  
Department of Physics  
*IIT, Guwahati, India*

Prof. B Indrajit Sharma  
*Assam University  
Silchar, India*

Dr. Iman A Mahdy  
Associate Prof.  
Department of Physics  
*Al-Azhar University,  
Nasr City, Cairo, Egypt. 11754*

Dr. Kazi Haniem Maria  
Associate Prof.  
Department of Physics  
*University of Dhaka, Dhaka  
Bangladesh*

Dr. Samaresh Guchhait  
Department of Physics and Astronomy  
*Howard University, Washington DC*

Dr. Gowhar Ahmad Naikoo  
Department of Mathematics and Sciences  
*Dhofar University  
Salalah 211, Sultanate of Oman*

Dr. K Mohanraj  
*Manonmanium Sundram University  
Tamilnadu, India*

**Technical Committee**

Dr. U Das, Coordinator  
Dr. H. Shanjit Singh, Coordinator  
Mr. Bhaskar Jyoti Chutia  
Pitambar Jaishy  
Rajesh Prasad  
Jumli Kato  
Tana John Tara

**Contacts**

Prof. P K Kalita Convener  
E-Mail: [convener2020@gmail.com](mailto:convener2020@gmail.com)  
Ph: 9706033691

Dr. Upamanyu Das, Co ordinator, Ph-9706011265  
Dr.H.Shanjit Singh, Coordinator, Ph-7308260563