

Department of Physics

E-BULLETIN



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Editorial

The entire domain of human knowledge is built up on research. Research is the process of critical enquiry carefully made on facts, events, natural phenomena, society and many other fields. The objective of research is to find the truth behind cause and effect, their inter-relationship with a view to acquire knowledge. It brings many truths hardly recognized earlier. Scientific research is a logical process based on observations, data collections, data analysis on the basis of mathematical formulations and their interpretations. Scientific research is mainly classified as Fundamental Research and Applied Research.

Fundamental research brings brand new theories or modifies old conventions based on new ideologies and brings them to world of reality. On the other hand, Applied research is the art and skill of the fruit full application of the theories to solve real existing problems. However there is no any clear separation between fundamental and applied research. All the technological advancements are the fruit full application of scientific discoveries. Many cases, applied research points the loop holes in existing theories and opens new doors to fundamental research.

The scientific theories must be universal in all claims and at all time. Let the flame of research keeps burning brighter all the time, everywhere.

Monoranjan Kakoti, Editor
Assistanat Professor, Department of Physics, J. B. College

Departmental Activities (2014 – 2015)

Faculty Training Programme



FTP organized by the Department of Physics

Department of Physics, Jagannath Barooah College organized a Faculty Training Programme on “Ideas of Computer & Numerical Analysis using C++” for all the faculty members of the department in order to train themselves in the field of computer programming in C and C++ which is a compulsory subject in the recently implemented CBCS Physics Honours course in Jagannath Barooah College.

Distinguished Lecture III



Prof E.S. Rajagopal (left) and the participants (right) of DLS-III

Department of Physics, Jagannath Barooah College organized the 3rd lecture of the Distinguished Lecture Series on 24th August 2016 in collaboration with the Physics Society of J. B. College. The lecture was delivered by Prof. E. S. RAJA GOPAL, INSA Emeritus Scientist, Department of Physics, Indian Institute of Science, Former Director, National Physical Laboratory, New Delhi on the topic “Global Warming, A Scientist Looks at the Reality and the Myths.”

Departmental Activities (2014 – 2015)

Science Day Celebration



Dr. Pranabjyoti Chetia delivering his motivational lecture

Department of Physics, Jagannath Barooah College organized a motivational lecture for on “Man in space land” delivered by Dr. Pranabjyoti Chetia (Curator, Jorhat Planetarium) on the occasion Science day (28th February, 2017).



Eloquence competition was organized

The department also organized an eloquence competition on the occasion Science day (28th February, 2017) among the school children in order to foster scientific temper in the society by involving /educating the young.

Student Achievements

- ❖ Himangshu Sarma, a student of 6th Semester of the department, secured top position in the National Graduate Physics Examination (NGPE) conducted by Indian Association of Physics Teachers in 2017.



Research Conclave at IITG

- ❖ Research Conclave was organized under the banner of Students' Academic Board (SAB) of Indian Institute of Technology Guwahati (IITG). It is a strong platform to nurture the young minds towards research, innovation, and entrepreneurship, which intends to bring the integrity of the students towards both industries and academia to redress the academic research challenges, concerns of the entire student community and upcoming entrepreneurs around the globe. Three students of our department attended the conclave. A model presented by Rijaul Hussian of Physics Department got a high regard from other participants.
- ❖ Arshad Hussain secured the "Photo of the day (08.11.2017)" award of Jorhat photo club and 2nd prize in Phoenix online photography competition.
- ❖ Bhagyashree Gogoi secured the 2nd prize in the category of Assamese poem in the Wall Magazine competition, 2017.

Research Profile of the Department (2014-2016)

Research Publications

Journal Papers

1. D. Saikia & R. Sarma. A comparative study of the influence of nickel oxide layer on the FTO surface of organic light emitting diode. Indian Journal of Physics, 92(3), 307–313, 2017.
2. D. Saikia & R. Sarma. A Comparative Study On The Performance Of FTO Based Organic Light Emitting Diode (OLED). IJREAT International Journal of Research in Engineering & Advanced Technology, 5(1), 13 – 20, 2017.
3. D. Saikia & R. Sarma. Improved performance of organic light-emitting diode with vanadium pentoxide layer on the FTO surface. Pramana 88(6), 83, 2017.
4. Tribeni Borthakur, & Ranjit Sarma. Performance enhancement of top contact pentacene-based organic thin-film transistor (OTFT) using perylene interlayer between organic/electrode interface. Applied Physics A 123(3) 207, 2017.
5. Siam, C., Hazarika, A., Rajkhowa, J., Saikia, J. and Baruah, G.D., “Schrodinger’s Cat State in Two- Slit Interferometer and in Some Macroscopically Distinguishable State”, International Journal for Research in Applied Science & Engineering Technology, 5(11), 2017.
6. Nirmal Mazumder, Gitanjal Deka, Wei-Wen Wu, Ankur Gogoi, Guan-Yu Zhuo, Fu-Jen Kao. Polarization-Resolved Second Harmonic Microscopy. Methods, 128, 105–118, 2017. DOI: 10.1016/j.ymeth.2017.06.012.
7. Manash J. Boruah, Ankur Gogoi, Bikash C. Nath, Gazi A. Ahmed. Light scattering studies of randomly oriented polycrystalline fayalite micro particles as interstellar dust analogues. Journal of Quantitative Spectroscopy and Radiative Transfer, 196, 213–221, 2017. DOI: 10.1016/j.jqsrt.2017.04.019.

Appl. Phys. A (2017) 123:207
DOI 10.1007/s00339-017-0836-2

Applied Physics A
Materials Science & Processing



Performance enhancement of top contact pentacene-based organic thin-film transistor (OTFT) using perylene interlayer between organic/electrode interface

Tribeni Borthakur¹ · Ranjit Sarma¹

Screenshot of the first page of a journal paper of the department

Books

1. Dhruvajyoti Saikia & Ranjit Sarma. Organic Light Emitting Diode for Display Technology. Krishi Sanskriti Publications, New Delhi, India (2017). ISBN: 978-93-85822-40-7