



# R&D NEWSLETTER

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Indian Institute of Technology Guwahati



## MESSAGE FROM DIRECTOR

I am very happy that the Research & Development Section of IIT Guwahati is publishing its quarterly newsletter. I congratulate all the faculty members for disseminating research activities of IITG to all the stakeholders through this initiative. I wish that the research findings of IITG gets thoroughly dispersed across academic, research institutions and Industries in India and abroad. Many R&D institutions are requested to involve with IITG for working in both advance and thrust areas of research. It is pertinent to mention that we need to increase our research project submission across the departments and centers. I strongly encourage multidisciplinary research initiatives across each and every departments and centres of IITG in order to fulfil the aspirations of all the stakeholders. I appeal to all faculty to ponder upon this suggestion and start preparing research proposals to various calls of the Govt agencies, industries and other international agencies. Research activities should be inclined in such a way that it reaches the common people of India and paves the pathway for upliftment of the society. IITG is now on full swing to work with industries for challenging research problems aligning with our Honourable Prime Minister's mission on "Atma Nirbhar Bharat". Evidence of strong research capabilities of faculty members of IIT Guwahati in the recent years have made them at par with other faculties around the globe. Focused Centers of Excellence (CoE's) and various Research Forums in focused areas at IIT Guwahati will further strengthen our commitment to provide state of the art research ambience to the Industries to achieve targets through translational research. Keeping in mind the Swachh Bharat Mission, IITG research community should collectively work towards providing state of the art Infrastructure, logistics to build sustainable and smart cities. In addition, initiatives need to be taken for delivering bio based sustainable technologies through utilization of the flora and fauna of North Eastern Region to fulfil the aspiration of people with the targeted mission for 'Vocal for Local'. There is a pressing need for cutting edge research initiative among IITG faculty members in order to orient themselves with Swasth Bharat Mission. Technological approaches for advancements in agricultural sector need to be taken by IITG research community in order to improve the livelihood of the farmers who are the backbone of this great Nation. Let's work together with all the stakeholders to deliver best research outcome for the society. I wish the very best to all faculty at IIT Guwahati.

### Prof. T. G. Sitharam

Director, IIT Guwahati



## From Deans' Desk

IIT Guwahati has a dedicated Research and Development management office with Dean, Associate Dean and staff to cater to the need of projects, its support planning and to take care of financial management of Institute R&D activities. R&D section is dedicated to facilitating the IIT Guwahati research fraternity to execute their research activities in a seamless manner, showcase their research work and disseminate them to the stakeholders. This section also handles all purchases and manpower recruitment related to the projects. Currently, the Institute has research guidelines in place for effective management of on-going research in the Institute. The research activities of the Institute are of strategic importance to

### Prof. Vimal Katiyar


Dean (R&D)



### Prof. Subhendu S. Bag

Associate Dean (R&D)

the nation, catering to the needs of large/medium/small scale industries in the country, facilitating the needs of the rural sector by dissemination of technology for societal benefit including healthcare and training of the rural people and academic research. The institute gives immense importance to generate technologically sound manpower through the training of students and research professionals. However, the Institute is in the process of framing more effective R&D policies which will further strengthen the research management structure in a more comprehensive manner. This may include grant management, outreach with funding agencies, research partnership building with industries at national and international levels, research ethics and policies, and facilitating research networking with peers. It also provides professional research management advice and support to the principal investigators. R&D section is really seeking research collaborations of IITG faculty members with experts in their respective areas across the globe. IIT Guwahati is further focused on enhancing the industrial research ambience in the Institute through industry interventions. The Institute invites all stakeholders to collaborate with us for cutting edge fundamental and translational research.



# New Research Projects

- Mathematical And Statistical Modelling of Covid-19 Outbreak In India.

Funding Agency: SERB

Principal Investigator: Dr. Siddhartha Pratim Chakrabarty

- Design, Analysis, Modeling, And Fabrication of The Silicon Photonic Devices.

Funding Agency: DST

Principal Investigator: Dr. Ramesh Kumar Sonkar

- Strategic Planning for Water Resources And Implementation of Novel Biotechnical Treatment Solutions And Good Practice.

Funding Agency: DBT

Principal Investigator: Dr. Sanjukta Patra

- Study of Glacial Dynamics And Sustainable Hydrological Resources In Arunachal Himalaya.

Funding Agency: DST

Principal Investigator: Dr. Chandan Mahanta

- Women's Lives Within Legal Pluralism: A Study In Assam.

Funding Agency: ICSSR.

Principal Investigator: Dr. Sawmya Ray

- Cumulative Impact Assessment For Cascading Interventions In Himalayan Rivers (C<sub>2</sub>HR).

Funding Agency: Ministry of Environment, Forest And Climate Change, GOI

Principal Investigator: Dr. Subashisa Dutta

- Security Analysis of Compiler Optimization Techniques Funding Agency: SERB

Principal Investigator: Dr. Chandan Karfa

- Injectable Bioresorbable Silk Hydrogel System For Localized Breast Cancer Therapy And Post Lumpectomy Reconstruction

Funding Agency: SERB

Principal Investigator: Dr. Biman Behari Mandal

- Extremely Water Repellent Coating for Anti-Viral Application.

Funding Agency: SERB

Principal Investigator: Dr. Uttam Manna

- Development And Demonstration of Water Generating Unit From Atmospheric Air.

Funding Agency: Indian Army

Principal Investigator: Dr. Senthilmurugan Subbiah

- Repurposing Endogenous CRISPR-Cas Type-I Machinery For Efficient Markerless Genome Editing Tool in Leptospira Interrogans.

Funding Agency: DBT

Principal Investigator: Dr. Manish Kumar

- Design And Synthesis of New Light Harvesting Chromophores And Studying Their Photophysical Properties.

Funding Agency: SERB

Principal Investigator: Dr. Parameswar K Iyer

- Prototype Development For Catechins Extraction And Production of Low Cost Antioxidants Tablets And Capsules.

Funding Agency: INAE

Principal Investigator: Dr. Mihir Kumar Purkait

- Design And Development of A Simple Cost-Effective Table-Top Multi-Axis CNC Machine Tool Configuration Using Parallel Kinematics.

Funding Agency: SERB

Principal Investigator: Dr. Shrikrishna Nandkishor Joshi

- Quality of Living: Smart Home Environment Creation Through Automatic Monitoring And Utilization of The Physical And Cognitive State of The Residents

Funding Agency: DEITY

Principal Investigator: Dr. Sukumar Nandi

- Designing Incentives to Improve Tuberculosis Treatment Adherence In Resource Constrained Settings

Funding Agency: NUS-Global Asia Institute NIHA Research Grant 2018

Principal Investigator: Dr. Keyur Babulal Sorathia

- Development of Reusable And Compostable CNC Formulated Nano-coating Based Anti-viral Mask And Overall Suites for COVID-19 Patients And Healthcare Workers  
Funding Agency: DST  
Principal Investigator: Dr. Vimal Katiyar
- Towards Scalable Quantum Computer Using Yb Atoms In an Optical Lattice  
Funding Agency: DST  
Principal Investigator: Dr. Kanhaiya Pandey
- Electroencephalographic Characterization of Post-Stroke Motor Imagery Induced Mental Fatigue for Adaptive Neurorehabilitation  
Funding Agency: DST  
Principal Investigator: Dr. S.M. Hazarika

## Memorandum of Association (MoA)

- MoA Between Department of Biotechnology (DBT), Govt. of India and Indian Institute of Technology Guwahati has been signed on 30.08.2020.
- This Memorandum of Agreement (MoA) is related to the 'Fabrication of Biocompatible Scaffolds for Delivery of Stem Cells in Myocardial Infarct Model : In Search of an Ideal Cardiac Patch'. Initiated by Dr. Biman B. Mandal, Department of Biosciences and Bioengineering, Indian Institute of Technology Guwahati.

## Awards & Fellowships

- Dr. Mihir Kumar Purkait has been selected for the conferment of the “Abdul Kalam Technology Innovation National Fellowship” for a period of three years with effect from October 1, 2020 to September 30, 2023.
- Dr. Uttam Manna has been awarded the Humboldt Research Fellowship for Experienced Researchers.
- Dr. Uttam Manna has been awarded the Fellow of the Royal Society of Chemistry (FRSC) in October 2020.
- Dr. Uttam Manna has been awarded the Emerging Investigators in Chemical Communication in 2020.
- Dr. Biman B Mandal has been awarded the prestigious Swarnajayanti Fellowship by the Department of Science and Technology, India for the year 2019-2020 in the “Life Science” subject.

## Patents (Filed/Granted)

- Dr. Prabir Kumar Saha, Department of Chemical Engineering, Patent filed/granted: Apparatus/System For Electrolytic Treatment of Water Indian Patent No. 347762 granted on 25 September 2020.
- Ambrish Singh, Sajan Kapil, Manas Das, A gravity-based, Gas-Free and Omnidirectional Laser PowderCladding Head, Indian Patent, Application Number: 202031035876.
- Biman B Mandal and Bibhas K. Bhunia. Antimicrobial Coatings And Preparation Process Thereof. Indian patent Application 202031014932.
- Puneet Talesara, Aditya Kochar, Senthilmurugan Subbiah, Selvaraju Narayanasamy, Rohan Sharma, Disinfectant Tunnel, Application No 202011030617, Filling date 17-July 2020.



# Team: Research & Development Section



Prof. Vimal Katiyar  
Dean (R&D)



Prof. Subhendu Sekhar Bag  
Associate Dean (R&D)



Dr. Subhajit Choudhury  
Assistant Registrar

## Project Team



Dr. Arnab Guha  
Assistant Project Officer



Dhanmoni Kalita  
Junior Assistant



Avishek Dutta  
Junior Assistant

## Purchase Team



Kumud Chandra Das  
Sr Superintendent



H. Jamginmuan  
Jr Superintendent



Jinti Saikia  
Junior Assitant



Swapna Kalita  
Office Assistant



Bidisha Chetia  
Office Assistant



Jharnalika Baruah  
Office Assistant

## Accounts Team



Hemanta Kr. Nath  
Junior Accountant



Biki Sharma  
Office Assistant



Himduti Kashyap  
Office Assistant



Doli Basumatary  
Office Assistant



Piyush Prasad  
System Engineer



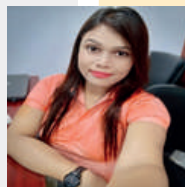
Sarthak Roy  
System Engineer

## Automation Team

## Human Resource Team



Abha R. N. Choudhury  
Senior Assistant



Purabi Choudhury  
Office Assistant



Dibakar Pratim Deb  
Superintendent



Supriyo Kr. Das  
Junior Assistant



Swagata Chakraborty  
Office Assistant

## Utilisation Certificate Team

## Support Team



Ranjan Patowary  
Senior Attendant



Pranab Kalita  
Attendent