

# NBC

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# NATIONAL BIOENGINEERING CONFERENCE

Transdisciplinary approaches in biotechnology and medical engineering research



22<sup>nd</sup> & 23<sup>rd</sup>  
DECEMBER  
2022

PAPER  
PRESENTATION

POSTER  
PRESENTATION

BIO  
IDEA PITCH

SCIENTIFIC  
PHOTOGRAPHY

Organized by: Department of Biotechnology and Medical Engineering  
*in association with*  
Department of Mining Engineering, NIT Rourkela

# **National Bioengineering Conference, 22-23 Dec 2022**

**Theme:** *Transdisciplinary approaches in biotechnology and medical engineering research*

## **About the Department**

The Department of Biotechnology and Medical Engineering was established in 2007 with the objective of providing a multidisciplinary research and teaching program in Biotechnology and Medical Engineering that advances fundamental understanding of how biological systems operate and to develop effective biology-based technologies for applications across a wide spectrum of societal needs including innovations in diagnosis, therapy of human diseases, design of novel biomaterials, biomedical devices, and in solving environmental hazard. The faculty members have diverse research interests and they conduct both basic and applied research in diverse areas such as Cell & Molecular Engineering, Tissue Engineering & Biomaterials, Bioprocess Engineering, Environmental & Plant Biotechnology, Biomechanics & Biotransport Engineering, and Medical Electronics & Instrumentation.

## **Vision of the Department**

To become a globally recognized department of higher learning that aims to produce quality engineers, technologists and innovators in the field of Biotechnology and Biomedical Engineering for solving technological challenges with socio-ethical implications for the benefit of humanity.

## **Mission of the Department**

- M1. To advance knowledge and skills in the fields of Biotechnology and Biomedical engineering with a motivation to produce globally competitive professionals and researchers.
- M2. To create wealth and welfare for the fulfillment of societal needs by solving technological challenges with socio-ethical implications.
- M3. To create a multi-disciplinary educational curriculum, research opportunities, and collaboration that promote creativity, innovation, invention, and entrepreneurship for the growth of the nation.

## **About the conference**

Bioengineering conference is an annual event organized by the Department of Biotechnology and Medical Engineering at NIT Rourkela to bring together undergraduates, postgraduates, research scholars and researchers working in the area of bioengineering. The theme of this year's conference is "*Transdisciplinary approaches in biotechnology and medical engineering research*". As we are aware, we are witnessing an important phase of technological development in the history, with a tremendous emphasis on the utility of the computational resources and sophisticated tools for solving problems of transdisciplinary interest in bioengineering. With an ever increasing knowledge and rising bandgap between the technological advancement and the lab-scale innovations there is a need for connecting the bridge between the two; preferably by means of translational innovations in integrating technologies and moving beyond the discipline-specific approaches. In this conference we bring together the experts and the beginners from various disciplines to share their experiences, pre/ post pandemic era, on the dynamics of the transdisciplinary approaches in solving problems of

relevance to bioengineering. The conference will serve as a best platform to learn and share the new ideas in the area by connecting the stakeholders involved, particularly students, faculties, engineers, doctors, entrepreneurs, incubators, and enthusiasts. The conference will serve to inspire the new generation of bioengineers to come up with novel, translatable ideas in order to meet the needs of national and international community.

The conference covers all topics in bioengineering, but not limited to, such as – Cell & Molecular Engineering, Tissue Engineering & Biomaterials, Bioprocess Engineering, Environmental & Plant Biotechnology, Biomechanics & Biotransport Engineering, and Medical Electronics & Instrumentation.

#### Previous conference series

- National Bioengineering Conference, Jan 6-7, 2022
- National Bioengineering Conference, Dec 10-11, 2020
- National conference on Bioengineering, Dec 6-7, 2019
- National conference on Bioengineering, Dec 14-15, 2018
- National conference on Tissue Engineering & Regenerative Medicine, Jul 19-20, 2017

#### Call for papers

Authors/researchers are invited to submit their original and unpublished (not submitted elsewhere for publication or review) research works to National Bioengineering Conference 2022. Following are the topics of interest (but not limited to),

• Tissue engineering	• Gene therapy	• Virtual surgery
• Neural engineering	• Recombinant DNA techniques	• Telemedicine
• Rehabilitation engineering	• Cancer immunotherapy	• Health care analytics
• Bio-inspired design	• Pharmaceutical sciences	• Health and safety
• Medical devices and implants	• Cancer genetics	• Safety in mining industries
• Bioprinting	• Genome mapping	• Occupational hazards
• Biomagnetism	• Computational immunology	• Artificial intelligence
• Biosensors	• Computational biology	• Biomedical instrumentation
• Biometrics	• Pharmacogenetics	• Biomedical signal processing
• Biomicrofluidics	• Bioinformatics	• Biomedical image processing
• Bio-inspired design	• Immunology	• Medical imaging techniques
• Regenerative medicine	• Plant biotechnology	• Imaging and biophotonics
• Medical devices and implants	• Plant molecular biology	• Embedded systems in medicine
• Cancer biotechnology	• Industrial biotechnology	• IPR in bioengineering
• Cell and molecular biology	• Environmental biotechnology	• Ethics in bioengineering
• Developmental biology	• Microbial and environmental biotechnology	• Mechanics of biological materials
• Neurobiology	• Food engineering	• Biomaterials
• Stem cell biology	• Microbial ecology	• Biomechanics
• Synthetic and systems		• Biofluid dynamics
		• Mechanobiology
		• Biomathematics



biology	• Bioenergy	• Bionics
• Bioprocess engineering	• Bioremediation	• Prosthetics
• Functional microbes	• Carbon footprint	• Biorobotics
• Natural products	• Bioceramics	• Ergonomics
• Cellular Physiology	• Radiology	• Design aesthetics
• Systems Physiology	• Clinical diagnosis	• Medical robotics
• Omics - genomics, transcriptomics, proteomics, or metabolomics	• Diagnostics and theranostics	• Human computer interaction
	• Medical informatics	• Rehabilitation engineering
	• Medical electronics	• CAD/CAM/CAE in bioengineering

\*events also include **Poster Presentation, Bio Idea Pitch and Scientific Photography.**

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Biomedical Devices, Micro and Nano Fabrications,  
Smart Materials, Carbon Nanotubes, Silicon  
Nanowire, Energy Harvesting

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<b>Prof. Singam Jayanthu</b> Mining Engineering, NIT Rourkela	Mine Planning and Design, Slope stability, Ground Control, Underground Coal Mining Methods, Instrumentation for Mines
<b>Dr. Manisha Agarwal</b> MD (Radiology), JP Hospital, Rourkela	MRI (diffusion, high-field, oscillating gradient diffusion), Pre-clinical MRI, Brain Atlases, Neuroimaging, Neurodegenerative Diseases

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### Volunteers

Mr. GLP Ashok (Scholar)

Ms. Ch. Jaya Gayatri (PG)

Mr. Yugesh Ramdhun (UG)

### Guidelines for abstract/full paper submission

Authors are invited to submit papers in the format as prescribed under the author's instructions to drafting of the full paper. An abstract and full paper will be peer-reviewed by the scientific committee and communicated to the authors concerned for further revision. All accepted papers will be published in conference proceedings as a book series by the leading publishers. The details of the book series and extended paper submission to the special issues will be updated soon upon the agreement with the publisher. Details on how to submit abstract/ full paper at <http://easychair.org> are provided in the website.

\*Guidelines for oral presentation, poster, bio-idea pitch and scientific photography are included in the website.

### Important dates

1. Abstract submission deadline : 15/10/2022
2. Communication of acceptance: 20/10/2022 (or 10 days post submission)

### Registration fees

Participants	Early bird Registrations ends on 30 <sup>th</sup> Oct 2022	Registration ends on 10 <sup>th</sup> Dec 2022
<b>Indian nationals</b>		
Students	Rs 2,000/- ( including GST )	Rs 2,500/- ( including GST )
Academicians	Rs 3,000/- ( including GST )	Rs 3,500/- ( including GST )
Industrialists/ R&Ds	Rs 5,000/- ( including GST )	Rs 5,500/- ( including GST )
<b>Foreign Nationals</b>		
Students	100 USD	120 USD
Academicians	200 USD	250 USD
Industrialists/ R&D	350 USD	400 USD

\*only attendees Rs 1,000 or 50 USD

Registration includes: conference kit, tea/coffee breaks, lunch, and banquet dinner.

On spot registration will include extra charge of Rs. 500 or 50 USD.

<sup>#</sup>For delegates, accommodation will be arranged at the guest house. <sup>%</sup>For participants, arrangements will be made for accommodation within the campus, subject to availability. Participants may also prefer staying at hotels in Rourkela city.

### Bank Details for Registration Fees

Payment should be made through an Online transfer / Demand Draft in favour of “**Conference, NIT Rourkela**” payable at SBI, NIT Branch Rourkela - 769008 and send to the following address. You may choose to pay the amount through NEFT/RTGS with following details:

- Branch Details : State Bank of India (SBI), NIT CAMPUS, ROURKELA
- IFSC Code : SBIN0002109
- Account Name : CONFERENCE, NIT ROURKELA

- Account Number : 36734418111

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Advertisement on website	Yes	Yes	Yes	Yes
Acknowledgment in conference programs and sessions	Yes	Yes	Yes	Yes
Advertisement on printed materials	Yes	Yes	Yes	No
Product and Services Brochures in the Conference Kit	Yes	Yes	No	No
Complementary event registration	4 nos.	3 nos.	2 nos.	1 nos.
Separate space for product display	Yes	Yes	Yes	Yes
Advertisement in technical session	Yes	No	No	No
Opportunity for presentation in technical session	Yes	No	No	No

Website: <https://nbc2022.tech/> | Registration: [http://bit.ly/NBC\\_REGISTRATION](http://bit.ly/NBC_REGISTRATION)





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(Prof. A. Ravi Kant )  
*kantar@nitrkl.ac.in*

Ashok (Scholar)  
+91 7989573710

(Prof. Bala Chakravarthy)  
*neelapubc@nitrkl.ac.in*

Gayatri (PG)  
+91 9790021188

(Prof. Singam Jayanthu)  
*sjayanthu@nitrkl.ac.in*

Yugesh (UG)  
+91 9861017258