NIAS

NATIONAL INSTITUTE OF ADVANCED STUDIES

BRICS INDIA 2021

DEPARTMENT OF SCIENCE AND TECHNOLOGY

BRICS YOUNG SCIENTISTS CONCLAVE

ANNUAL REPORT 2021

BUILDING BETTER SOCIETIES THROUGH SCIENCE, TECHNOLOGY & INNOVATION

13-16 SEPTEMBER 2021,
BENGALURU, INDIA

Contents

BRICS YSF 2021 – 2022: An Introduction

The National Institute of Advanced Studies has been functioning as the Secretariat to the BRICS Young Scientists Forum, supported by the Department of Science and Technology, Government of India, and the BRICS STI Coordinating Ministries of the BRICS countries.

The vision of BRICS YSF is to provide a common platform, for young scientists across the BRICS countries to connect, network and harness their knowledge to resolve common societal challenges through innovations in research. The Forum and the Conclave also seeks to strengthen and advance research skills and competencies of youth, below the age of 40 years from Science, Engineering, and other allied disciplines.

About the Conclave

The idea of the BRICS Young Scientists' Forum which was adopted at the second BRICS Science, Technology, and Innovation (STI) Ministerial Meeting saw Conclaves hosted in Bengaluru, India (2016); Hangzhou, China (2017); Durban, South Africa (2019); Brasilia, Brazil (2019); and Chelyabinsk, Russia (2020). The sixth BRICS Young Scientists' Conclave this year was hosted yet again by the National Institute of Advanced Studies in Bangalore. However, the Conclave this year, much like in 2020, was held virtually on the Zoom web conferencing platform due to the global Covid-19 situation.

The Conclave this year focused on research themes in the following three areas:

1. Healthcare

- New areas in healthcare research
- Old and New areas/risks in healthcare
- Innovative health technologies

2. Energy Solutions

- Renewable energy
- Battery technologies
- Grid technologies

3. Cyber Physical system (CPS) and their applications

- Cyber security, IoT and Data Science
- Research and Innovations in CPS
- Modelling, Analysis and Synthesis Techniques

Programme

The programme for the sixth BRICS YSF included the following activities:

1. Three Parallel Sessions on the Thematic Areas - Healthcare, Energy Solutions and Cyber Physical system (CPS) and their applications

2. BRICS Young Innovator Prize for projects on themes surrounding Healthcare, Energy Solutions and Cyber Physical system (CPS) and their applications

On each day of the three-day conclave, there was a keynote address on one among the three themes, a panel-discussion by senior scholars, and a panel discussion led by the participants.

While the participants, the delegates and the organizers attended the conclave through the Zoom platform, the programme was also live streamed on the official YouTube channel (BRICS-YSF2021) for the BRICS YSF at https://www.youtube.com/channel/UCpcNigMiIoZJIQ1fgRu7R_g/about.

Eligibility and Selection Process

Scientists/ engineers/ technologists/ innovators/ science journalists/ educators-science, science literacy and popularizing professional / specialists on translational aspects of research and technology integration in society-market / researchers, up to the age of 40 years as of 15 August 2021 were eligible to apply for the Conclave. The participants must be doctoral students or post-doctoral or a young faculty who has completed PhD degree in the above-mentioned areas/ topics. Applicants who have already participated in the previous editions of BRICS Young Scientist Conclaves were not eligible to apply.

The application process, which had been digitized since 2019, began after the meeting of the BRICS Steering group in July 202, through the online http://www.brics-ysf.org/ portal. The applicants were asked to submit their application-forms, a brief CV, a reference letter from peer/guide/mentor/academician/ scholar etc. indicating the participant's research interest and achievements.

Across India, 87 applications were received (Annexure-I), for the three themes and the Innovators Prize (Healthcare - 31, Energy Solutions – 31, Cyber Physical Systems – 5, Innovators Prize -20), out of which 20 participants were selected.

The DST and NIAS constituted an Expert Selection Committee (ESC) to select the Indian participants for the Conclave, which was approved by the Director, National Institute of Advanced Studies. The committee met online in a Zoom meeting hosted by the National Institute of Advanced Studies on 2 September 2021 under the Chairmanship of Prof. PM Soundar Rajan.

The selection committee of experts, discussed the applications in detail under four categories, was constituted by the following members:

1. Dr Pramod Garg, Executive Director, Translational Health Science & Technology Institute, Faridabad.
2. Jyotsendu Giri, IIT Hyderabad
3. Dr Sonu Gandhi, NIAB, Hyderabad
4. Dr Biman Mandal, IIT Guwahati
5. Prof S Sampath, IISc, Bangalore
6. Dr Anil Kumar, DTU, New Delhi
7. Dr B.K Panigrahi IIT Delhi
8. Prof PM Soundar Rajan, Visiting Professor, NIAS, and Former Director of DARE, DRDO Bengaluru
9. Prof Seema Verma. Dean, School of Aviation, Banasthali Vidyapeeth, Rajasthan.
10. Prof Srikumar Pullat, Head, International Strategic and Security Studies Programme, NIAS, and Former Director, ADE, DRDO.

Following an extensive discussion, the Committee recommended the following names under the four categories:

I. HEALTHCARE

1. Aravind Kumar, Assistant Professor, IIT Hyderabad
2. Barnali Biswas, DST Inspire Faculty ICMR-National Institute for Research in Reproductive Health.
3. Elima Hussain, Research Scholar, Institute of Advanced Study in Science and Technology, Guwahati Assam
4. Subhash N N, Scientist/ Engineer C in Department of Medical Device Engineering, Sree Chitra Tirunal Institute for Medical Sciences and Technology (SCTIMST), DST, Govt. of India
5. Subrota Haiti, Assistant Professor, Kamdhenu University, Anand, Gujarat

II. ENERGY SOLUTIONS

1. Balaji Kumar, Assistant Professor (Senior), Vellore Institute of Technology
2. Bukke Naik, Assistant Professor Grade-II, National Institute of Technology Rourkela
3. Gargi Goswami, Assistant Professor, GITAM Institute of Science, GITAM (Deemed to be University)
4. Saurabh Pandey, Assistant Professor, Indian Institute of Technology Patna
5. Sonal Thengane, Assistant Professor, IIT Roorkee
6. Vijay Kumar Yadav, Young Scientist/ Assistant Professor, SRTM University

III. CYBER PHYSICAL SYSTEMS

1. Deepika Koundal, Assistant Professor, University of Petroleum & Energy Studies
2. Durga Prasad Bavirisetti, Senior Assistant Professor, VIT Bhopal University
3. Rajalekshmi Kishore, Associate Professor, 4F-Lalith platinum.
4. Udit Satija, Assistant Professor, IIT Patna

IV. INNOVATORS PRIZE

1. Ankit Kumar, Doctoral Student, Indian Institute of Science, Bengaluru
2. Korobi Konwar, Research Scholar, Tezpur University
3. Rajesh Yadav, PhD Research Scholar, Indian Institute of Science
4. Sadiya Waseem, Senior Research Fellow, CSIR-National Physical Laboratory
5. Sajerao Doltade, NICE Fellow, ITIC, Indian Institute of Technology Hyderabad

The Committee also recommended the following applicants for the waiting list.

WAITLIST: HEALTHCARE

1. Ankita Dey, Statistician, National Institute of Tuberculosis and Respiratory Diseases
2. Joyshree Karmakar, Researcher, CSIR-Indian Institute of Chemical Biology
3. Swati Varshney, PhD student, Indian Institute of Technology Delhi

WAITLIST: ENERGY SOLUTIONS

1. Bappi Paul, Ramanujan Fellow, National Institute of Technology Nagaland
2. Prateek Bhojane, Assistant Professor, University of Petroleum and Energy Studies
3. Priyank Shah, Research Fellow, University of Warwick, and Indian Institute of Technology

WAITLIST: INNOVATORS PRIZE

1. Akshpreet Kaur, DST INSPIRE JRF, UIET, Panjab University, Chandigarh

Top 5 Innovators

The Top 3 innovators from the BRICS – YSK 2021 were:

1. **Joao Pedro de Goes Novochadalo (Brazil) - "Technology as a Path to Social Inclusion"**

Joao Novochadalo was facilitated as one among the top innovators for the BRICS YSF 2021 for 'Veever', a solution composed of micro-location devices, mobile applications, cloud computing,

and artificial intelligence which facilitates the interaction and mobility of people with visual impairments indoors and outdoors through a voice assistant.

2. Jiang Li (Nanjing University of Aeronautics and Astronautics, China) – "Hardware information security"

Jiang Li's project titled, Fingerprint of the Device (FOIC) -The Guardian of Industrial Internet Security, used a unique algorithm to extract the subtle differences in temperature, silicon impurity and dopant concentration during the processing of integrated circuits and used these differences to generate a chip's key function.

3. Junyi Gao (Peking Union Medical College Hospital, China) – "Medicine and Healthcare"

Junyi Gao's project applied deep learning technology in video real-time digital processing to assist surgeons in reducing the impact of smoke on the field of vision, rapid recognition of bleeding areas, gauze, and key anatomical structures.

"Energy and environment"
By Junchao Zhao,
University of Science and Technology, China

"Hardware information security"
By Jiang Li,
Nanjing University of Aeronautics and Astronautics, China

"UniFluVac: Development of the novel Universal Influenza Vaccine"
By Rajesh Yadav

"Technology as a Path to Social Inclusion"
By João Pedro de Goes Novochadlo,
Brazil

"Medicine and Healthcare"
By Junyi Gao,
Peking Union Medical College Hospital, China

BRICS YSF Conclave Programme

BRICS Young Scientists Forum (BRICS-YSF)

India Conclave 2021

13-16 September 2021

Building better societies through Science, Technology & Innovation

Organized by

National Institute of Advanced Studies

&

Department of Science and Technology, Government of India

Programme

Day - 01
13 September 2021, Monday

Time	Indian Standard Time
1630- 1645 hrs: *Welcome Address*	**Prof. Shailesh Nayak** *Director, National Institute of Advanced Studies, Bengaluru* **Dr. Sanjeev K Varshney** *Head, International Cooperation, Department of Science and Technology, Government of India, New Delhi*
1645- 1705 hrs: *Inaugural Address*	**Dr. Renu Swarup** *Secretary, Department of Science and Technology, and Department of Biotechnology, Ministry of Science and Technology, Government of India, New Delhi*
	Address by the BRICS delegation
1705-1710 hrs:	**Mr. Carlos Matsumoto**, Head, Brazil delegation
1710-1715 hrs:	**Ms. Albina Kuturova**, Head, Russia delegation
1715-1720 hrs:	**Mr. Arvind Kumar**, Head, India delegation
1720-1725 hrs:	**Ms. Li Wenjing**, Head, China delegation
1725-1730 hrs:	**Dr Stanley Maphosa**, Head, South Africa delegation
1730-2000 hrs:	Introduction by participants *(One minute each)*
2000 hrs:	*Vote of Thanks*

DAY – 02
14 September 2021, Tuesday

1630–1730 hrs: Special Address	**Energy Solutions: Shades of green energy options** **Prof. Dinesh Kumar Srivastava** *Homi Bhabha Chair Professor, National Institute of Advanced Studies, Bengaluru* **Chair: Prof. VS Ramamoorthy** *Emeritus Professor, National Institute of Advanced Studies, Bengaluru*

HEALTHCARE	ENERGY SOLUTIONS	CYBER PHYSICAL SYSTEMS	INNOVATORS
Participants' Panel (7 minutes for presentation)	Participants' Panel (7 minutes for presentation)	Participants' Panel (7 minutes for presentation)	Participants' Panel (7 minutes for presentation)
SESSION I 1730-1737 hrs: "Medicine and Healthcare" By Maobin Xie, *Guangzhou Medical University, China*	**SESSION I** 1730-1737 hrs: "Energy harvesting and self-powered sensing" By Jiaqing Xiong, *Donghua University, China*	**SESSION I** 1730-1737 hrs: "Hardware Security" By Yijun Cui, *Nanjing University of Aeronautics and Astronautics, China*	**SESSION I** 1730-1737 hrs: "Energy and environment" By Junchao Zhao, *University of Science and Technology, China*

1737-1744 hrs: "Nanotheranostics for cancer and other biomedical applications" By Aravind Kumar, *Indian Institute of Technology Hyderabad, India*	1737-1744 hrs: "The pathway to sustainable cooking and heating" By Balaji Kumar, *Vellore Institute of Technology, India*	1737-1744 hrs: "Cyber Physical Systems Based Intelligent Healthcare Diagnostic System" By Deepika Koundal, *University of Petroleum & Energy Studies, India*	1737-1744 hrs: "Multi-Agent Collaborative Framework for Automated Agriculture" By Kumar Ankit, *Indian Institute of Science, Bangalore, India*
1744-1751 hrs: "Viral load as a risk factor for the development of coronary atherosclerosis" By Kotova Yulia, *Burdenko state medical University, Russia*	1744-1751 hrs: "Effective catalyst based on zeolite modified polycations transition metals for purification of flue gas thermal power from sulfur and nitrogen dioxide." By Sokolovskiy Pavel, *N.D. Zelinsky Institute of Organic Chemistry Russian Academy of Sciences, Russia*	1744-1751 hrs: "Deep learning model for molecular generation" By Pyakillya Boris, *Tomsk Polytechnic University, Russia*	1744-1751 hrs: "Personalized Osteoimplantology" By Bolokov Ales, *Institute of Strength Physics and Materials Science of Siberian Branch, Russian Academy of Sciences, Russia*
1751-1758 hrs: "Development of biosensors for clinical diagnosis" By Bruno Campos Janeqitz, *UFSCar, Brazil*	1751-1758 hrs: "Sustainable poly-cogeneration plants" By Carolina P. Naveira-Cotta, *UFRJ, Brazil*	1751-1758 hrs: "Building Embedded Machine Learning systems for Industry 4.0" By Claudio Miceli de Farias, *UFRJ, Brazil*	1751-1758 hrs: "Device that helps to reduce Fibromyalgia chronic pain" By Bruna Leticia Land, *Brazil*
1758-1805 hrs: "Using stool for community-based surveillance of SARS-CoV-2 in rural South Africa: a proof of concept"	1758-1805 hrs: "Catalysis and Materials Science" By Gunshi Bhekumuzi, *University of KwaZulu-Natal, South Africa*	1758-1805 hrs: "Cyber Physical Systems and Artificial Intelligence in Health Care: Transforming the Industry with Technology"	1758-1805 hrs: "Hardware information security" By Jiang Li, *Nanjing University*
By Mavhandu-Ramarumo Lufuno Grace, *University of Venda, South Africa*		By Doorsamy Wesley, *University of Johannesburg, South Africa*	*of Aeronautics and Astronautics, China*
1805-1830 hrs: Discussion	1805-1830 hrs: Discussion	1805-1830 hrs: Discussion	1805-1830 hrs: Discussion
SESSION II 1830-1837 hrs: "Genetics and Brain Science" By Ming Li, *Kunming Institute of Zoology, China*	**SESSION II** 1830-1837 hrs: "Opto-electronic materials and devices" By Xin Yang, *Shandong University of Science and Technology, China*	**SESSION II** 1830-1837 hrs: "Artificial Intelligence" By Xiaohuai Sun, *Xiamen University, China*	**SESSION II** 1830-1837 hrs: "Development of smart theranostic agent for Cancer diagnosis using Zinc Ferrite nanorod embedded in Manganese Oxide 2D nanosystem" By Koobi Konwar, *Tezpur University, India*
1837-1844 hrs: "Development of novel targeted anticancer therapeutics" By Bulatov Emil, *Kazan Federal University, Russia*	1837-1844 hrs: "New martensitic steel for increasing energy efficiency of fossil power plant. On the way to the clean energy" By Mishnev Roman, *Belgorod National Research University, Russia*	1837-1844 hrs: "Control as a Service: Cloud Distributed Control Systems" By Alekseev Anton, *Peter The Great Saint Petersburg Polytechnic University, Russia*	1837-1844 hrs: "Metal-supported SOFC as a perspective power source" By Agarkova Ekaterina, *Chlyyan Institute of Solid State Physics RAS, Russia*
1844-1851 hrs: "Influence of dietary supplementation of Lactobacillus cultures on growth performance, fecal	1844-1851 hrs: "Thermochemical processes for sustainable fuels and products" By Sonal Thengane,	1844-1851 hrs: "Building Blocks for Network Cybersecurity-introducing resources to improve	1844-1851 hrs: "Mobbility (Education + Health Care = - Diseases)" By Darlei Pereira da Silva, *Brazil*

microbiota, blood profile and cholesterol contents by replacing antibiotics as growth promoter in broilers" By Subrota Hati, *Kamdhenu University, Anand, Gujarat, India*	*Indian Institute of Technology Roorkee, India*	Internet security" By Italo Fernando Scota Cunha, *UFMG, Brazil*	
1851-1858 hrs: "Role of connexin and pannexin (hemi)channels in liver diseases: new insights into cell/cell communication" By Bruno Cogliati, *USP, Brazil*	1851-1858 hrs: "Catalytic hydrothermal liquefaction of corn cob to bio-oil production: Effect of catalysts and optimization study" By Daniel Lachos Perez, *UFSM, Brazil*		1851-1858 hrs: "Artificial Intelligence" By Jie Li, *Xiamen University, China*
			1858-1905 hrs: "An Inclusive Approach To Textile Waste" By Poswa Sandiswa, *Trove Clothing, South Africa*
1900-1930 hrs: Discussion	1900-1930 hrs: Discussion	1851-1930 hrs: Discussion	1905-1930 hrs: Discussion

DAY – 03

15 September 2021, Wednesday

1630-1730 hrs: Special Address	**Cyber Physical System Security** **Dr. Vireshwar Kumar** *Department of Computer Science and Engineering, Indian Institute of Technology, Delhi* Chairperson: **Prof Seema Verma** *Dean, School of Aviation, Banasthali Vidyapith, Rajasthan*

HEALTHCARE	ENERGY SOLUTIONS	CYBER PHYSICAL SYSTEMS	INNOVATORS
Participants' Panel (7 minutes for presentation)	Participants' Panel (7 minutes for presentation)	Participants' Panel (7 minutes for presentation)	Participants' Panel (7 minutes for presentation)
SESSION I 1730-1737 hrs: "Intraoperative Radiotherapy: A First in Africa" By Ramdas Yastira, *University of Pretoria, South Africa*	**SESSION I** 1730-1737 hrs: "Band Gap-Engineered Graphene Quantum Dots (GQDs) for application as donor materials in Schottky Junction Solar Cells" By Mathumaba Penny, *Mintek, South Africa*	**SESSION I** 1730-1737 hrs: "An Access-Utilization Framework to Improve Academia-Industry Collaboration: A Case Study of the National Integrated Cyber-Infrastructure System in South Africa" By Els Floyd, *University of Fort Hare, South Africa*	**SESSION I** 1730-1737 hrs: "UniFluVac: Development of the novel Universal Influenza Vaccine" By Rajesh Yadav, *Indian Institute of Science, India*
1737-1744 hrs: "Brain science, Drug addiction" By Ti-Fei Yuan, *Shanghai Mental Health Center, China*	1737-1744 hrs: "Waste to energy" By Mi Yan, *Zhejiang University of Technology, China*	1737-1744 hrs: "Deep Learning, Vision and Language" By Yiyi Zhou, *Xiamen University, China*	1737-1744 hrs: "Mobile application for self-rapid assessment of human skin for the early detection of skin melanoma"

			By Runskaya Elena, *Moscow Institute of Physics and Technology, Russia*
1744-1751 hrs: "Will translation of Artificial Intelligence for the diagnosis of chronic diseases remain a challenge for long? – a perspective with special reference to cervical cancer" By Elima Hussain, *Institute of Advanced Study in Science and Technology, India*	1744-1751 hrs: "Microbial Bio-Resource for Production of Biofuels: An Industrial Biotechnology Perspective" By Gargi Goswami, *GITAM Institute of Science, India*	1744-1751 hrs:" "Low-power, spectrally efficient techniques for cyber physical systems By Rajalekshmi Kishore, *National Institute of Engineering, India*	1744-1751 hrs: "Technology as a Path to Social Inclusion" João Pedro de Goes Novochadlo, *Brazil*
1751-1758 hrs: "Sugar Logistics gone wrong in Male Infertility" By Barnali Biswas, *ICMR National Institute for Research in Reproductive Health, India*	1751-1758 hrs: "Sorption based mobile thermal energy storage for district heating/cooling system" By B Kiran Naik, *National Institute of Technology Rourkela, India*	1751-1758 hrs: "Multi-Agent Collaborative Framework for Automated Agriculture" By Durga Prasad Bavirisetti, *VIT Bhopal University, India*	1751-1758 hrs: "Artificial Intelligence" By Huafeng Kuang, *Xiamen University, China*
1758-1805 hrs: "Regenerative medicine in pulmonology" By Fernanda Ferreira Cruz, *UFRJ, Brazil*	1758-1805 hrs: "Hexacyanoferrates/carbon nanostructures films as cathodes for transparent and thin batteries" By Edson Nossol, *UFU, Brazil*	1758-1805 hrs: "The computing continuum: managing computing and networking from the edge to the cloud" By Luiz Fernando Bittencourt, *Unicamp, Brazil*	1758-1805 hrs: "Carbon Fiber Composites for Advanced Energy Applications" By Sadiya Waseem, *CSIR-National Physical Laboratory, India*
1805-1830 hrs: Discussion	1805-1830 hrs: Discussion	1805-1830 hrs: Discussion	1805-1830 hrs: Discussion
SESSION II 1830-1837 hrs: "Interactive diabetes care: A South African theoretical model for HCP-patient interaction" By Moola Sabihah, *University of South Africa (UNISA), South Africa*	**SESSION II** 1830-1837 hrs: "Emphasis of Fuel Cell Technologies for Sustainable Energy Solutions" By Maunan Thandwe, *University of Johannesburg, South Africa*	**SESSION II** 1830-1837 hrs: "Exploring the use of Immunologically Inspired Artificial Intelligence for the Protection of Industrial IoT Systems through the Generative Adversarial Machine Learning Approach" By Sthungu Siphesihle, *University of Johannesburg, South Africa*	**SESSION II** 1830-1837 hrs: "The development of technology for enriched dietary chocolate for consumers with a predisposition to the folate cycle" By Mutalibzoda Sherzodkhon, *K G Razumovsky Moscow State University of Technologies and Management, Russia*
1837-1844 hrs: "Proteomics" By Jing Yang, *National Center for Protein Science, China*	1837-1844 hrs: "Power and Energy" By Yi Wang, *The University of Hong Kong, China*	1837-1844 hrs: "Robotics" By Fei Chao, *Xiamen University, China*	1837-1844 hrs: "System for inertial data collection and data visualization for individualized medicine with a focus on Parkinson's disease" By Wanghley Soares Martins, *Brazil*
1844-1851 hrs: "An institution making a difference" By Subhash NN, *Sree Chitra Tirunal Institute for Medical Sciences and Technology, India*	1844-1851 hrs: "Recent Trends & Developments in Perovskite Photovoltaic" By Saurabh Pandey, *Indian Institute of Technology Patna, India*	1844-1851 hrs: "Energy-Efficient IoT-enabled Smart Health Systems for Cardiac and Mental Health Monitoring" By Udit Satija, *Indian Institute of Technology Patna, India*	1844-1851 hrs: "Medicine and Healthcare" By Junyi Gao, *Peking Union Medical College Hospital, China*

1851-1858 hrs: "Development of hybrid carriers of alpha emitters to improve the effectiveness of radionuclide therapy" By Timin Alexander, *Peter The Great Saint Petersburg Polytechnic University, Russia*	1851-1858 hrs: "Model unification of elements of hydropower plants for authorized design, management and training systems" By Sysoev Alexander, *National Research University, Russia*	1851-1858 hrs: "The development of the silicon spin-transistors for quantum computing at room temperatures" By Rul Nikolai, *Peter The Great Saint Petersburg Polytechnic University, Russia*	1851-1858 hrs: "Chemical free agro-processing system" By Sarjerao Doltade, *Indian Institute of Technology, Hyderabad, India* 1858-1905 hrs: Meth Randolph, *RMTT Solutions, South Africa*
1900-1930 hrs: Discussion	1900-1930 hrs: Discussion	1900-1930 hrs: Discussion	1905-1930 hrs: Discussion

DAY – 04

16 September 2021, Thursday

1630-1730 hrs:	**Panel Discussion with BRICS Alumni**		
HEALTHCARE	**ENERGY SOLUTIONS**	**CYBER PHYSICAL SYSTEMS**	**INNOVATORS**
Participants' Panel (7 minutes for presentation)	Participants' Panel (7 minutes for presentation)	Participants' Panel (7 minutes for presentation)	Participants' Panel (7 minutes for presentation)
SESSION I	**SESSION I**	**SESSION I**	**SESSION I**
1730-1737 hrs: "Newborn screening for rare diseases in Brazil." By Francyne Kubaski, *HCPA-UFRGS, Brazil*	1730-1737 hrs: "Wastewater into Energy: How microbial fuel cells can make that happen" Fernanda Leite Lobo, *UFC, Brazil*	1730-1737 hrs: "Recent advances developed in cyber physical systems in real applications" Pedro Pedrosa Reboucas Filho, *IFCE, Brazil*	1730 hrs: **Discussion by the Innovators' prize Adjudicators** Antonio Gomes Souza Filho, *Brazil* Kucherenko Maxim, *Moscow Institute of Physics and Technology, Russia* PM Soundar Rajan, *National Institute of Advanced Studies, India* Rongrong Ji, *Xiamen University, China*
1737-1744 hrs: "Translating past red blood cell (RBC) usage trends into predictions for the future: Insights for the South African National Blood Service (SANBS)" By Bolton Larisse, *SACEMA Stellenbosch University, South Africa*	1737-1744 hrs: "Calcium and iron nanoparticles as additives for enhancing low temperature biomethane production" By Rama Haripriya, *University of South Africa and Agricultural Research Council*	1737-1744 hrs: "Flexible electronics" By Qingqing Sun, *Zhengzhou University, China*	

1744-1751 hrs: "COVID-19; chronic airway inflammatory diseases" By Weijie Guan, *Guangzhou Medical University, China*	1744-1751 hrs: "Power Electronics Dominated Grids" By Jiebei Zhu, *Tianjin University, China*	1744-1751 hrs: "Investigation of Feature Engineering Methods for Identifying Attacks in the VANET" By Parfenov Denis, *Orenburg State University, Russia*	Yusi Skosana, *South Africa*
1751-1758 hrs: "Measuring Progress in Health Globally" By Idnisov Bulat, *Moscow Institute of Physics and Technology, Russia*	1751-1758 hrs: "Power plants based on renewable energy sources" By Sheverdiev Razhidin, *National Research University, Department of Hydropower and Renewable Energy Sources, Russia*	1751-1758 hrs: "Deep neural network inference offloading" By Rodrigo de Souza Couto, *UFRJ, Brazil*	
1758-1805 hrs: "Corrected QT (QTc) calculation in diabetic patients with and without HIV infection. Are all methods equal?" By Mkhwanazi Blessing, *University of KwaZulu-Natal, South Africa*	1758-1805 hrs: "Software package for wind energy calculations "Wind Turbine" By Ignatiev Evgeni, *National Research University (MPEI), Institute of Hydropower and Renewable Energy (IHRE), Russia*	1758-1805 hrs: "Supply Chain Smart Management" By Pokhodko Elena, *Financial University under the Government of the Russian Federation, Russia*	

1805-1830 hrs: Discussion	1805-1830 hrs: Discussion	1800-1830 hrs: Discussion
SESSION II	**SESSION II**	
1830-1837 hrs: "Genome Editing in Biomedical Research" Stepanov Grigory, *Institute of Chemical Biology and Fundamental Medicine SB RAS, Russia*	1830-1837 hrs: "From wine coolers to air conditioning systems operated by magnetic refrigeration units" By Jaime Andres Lozano Cadena, *UFSC, Brazil*	
1837-1844 hrs: By Msolo Luyanda, *University of Fort Hare, South Africa*	1837-1844 hrs: "Catalytic conversion of sugar alcohols to value-added chemicals and fuels" Shozi Mzamo, *University of KwaZulu-Natal, South Africa*	
1844-1851 hrs: "Prediction of suicide attempts in a national representative sample using machine learning techniques" By Ives Cavalcante Passos, *HCPA-UFRGS, Brazil*	1844-1851 hrs: "Energy Storage Device Fabrication and application" By Vijaykumar Jadhav, *SRTM University, India*	
1851-1858 hrs: "A second look into Gestation diabetes screening in Africa" By Khambule Lungile, *University of Witwatersrand, South Africa*		
1900-1930 hrs: Discussion	1851-1930 hrs: Discussion	
1930-2000 hrs:	Presentations of Top Five Innovators and Announcement of BRICS Innovator Prize	
2000-2030 hrs:	*Valedictory Address*	
2030-2045 hrs: *Closing Remarks by the Heads of Delegation*	**Mr. Carlos Matsumoto**, *Head, Brazil delegation* **Ms. Albina Kutuzova**, *Head, Russia delegation* **Dr. Arvind Kumar**, *Head, India delegation* **Ms. Li Wenjing**, *Head, China delegation* **Ms. Punkah Mdaka**, *Head, South Africa delegation*	
2045 hrs:	*Vote of Thanks*	

BRICS-YSF 2021: Delegation

BRAZIL	RUSSIA	INDIA	CHINA	SOUTH AFRICA
Mr. Carlos Matsumoto Head, Brazilian delegation	**Ms. Albina Kuruzova** *Ministry of Science and Higher Education of the Russian Federation, Russia* Head, Russian delegation	**Dr. Arvind Kumar** *Scientist F, International Cooperation, Department of Science and Technology, Government of India* Head, Indian delegation	**Ms. Li Wenjing** *Division for International Organizations and Multilateral Cooperation, Ministry of Science and Technology, China* Head, Chinese delegation	**Dr Stanley Maphosa** *International Liaison Manager, Academy of Science of South Africa* Head, South African delegation **Ms. Puakah Mdaka** *Director: Overseas Bilateral Cooperation, Department of Science and Technology, South Africa*
Mr. Antonio Gomes Souza Filho Adjudicator for Innovators' Prize	**Mr. Kucherenko Maxim** Adjudicator for Innovators' Prize	**Prof. PM Soundar Rajan** Adjudicator for Innovators' Prize	**Prof. Rongrong Ji** Adjudicator for Innovators' Prize	**Mr. Vusi Skosana** Adjudicator for Innovators' Prize

BRICS-YSF 2021: Participants

BRAZIL	RUSSIA	INDIA	CHINA	SOUTH AFRICA
Bruno Campos Janegitz, *UFSCar*	Kotova Yulia, *Burdenko State Medical University*	Aravind Kumar, *Indian Institute of Technology, Hyderabad*	Maobin Xie, *Guangzhou Medical University*	Doorsamy Wesley *University of Johannesburg*
Bruno Cogliati, *USP*	Idrisov Bulat, *Moscow Institute of Physics and Technology*	Barnali Biswas, *ICMR-National Institute for Research in Reproductive Health.*	Ming Li, *Kunming Institute of Zoology*	Els Floyd, *University of Fort Hare*
Fernanda Ferreira Cruz, *UFRJ*	Bulatov Emil, *Kazan Federal University*	Elima Hussain, *Institute of Advanced Study in Science and Technology, Guwahati Assam*	Ti-Fei Yuan, *Shanghai Mental Health Center*	Sifiwaqu Siphesihle, *University of Johannesburg*
Francyne Kobaski, *HCPA-UFRGS*	Timin Alexander, *Peter The Great Saint Petersburg Polytechnic University*	Subhash N N, *Department of Medical Device Engineering, Sree Chitra Tirunal Institute for Medical Sciences and Technology (SCTIMST), DST, Govt. of India*	Jing Yang, *National Center for Protein Sciences, Beijing*	Gumbi Bhekumuzi, *University of KwaZulu-Natal*
Ives Cavalcante Passos, *HCPA-UFRGS*	Stepanov Grigory, *Institute of Chemical Biology and Fundamental Medicine SB RAS*	Subrata Hati, *Kandhesa University, Anand, Gujarat*	Weijie Guan, *The First Affiliated Hospital of Guangzhou Medical University*	Mathumba Penny *Mmath*
Carolina P. Naveira-Cotta, *UFRJ*	Sokolovskiy Pavel, *N.D. Zelinsky Institute of Organic Chemistry Russian Academy of Sciences*	Balaji Kumar, *Vellore Institute of Technology*	Jiaqing Xiong, *Donghua University*	Masunas Thandiwe *University of Johannesburg*

Daniel Lachos Perez, *UFSM*	Sheverdaev Razhidin, *National Research University "Moscow Power Engineering Institute"/ Department of Hydropower and Renewable Energy Sources*	B Kiran Naik, *National Institute of Technology Rourkela*	Xin Yang, *Shandong University of Science and Technology*	Rasna Hariparsa *University of South Africa and Agricultural Research Council*
Edson Nossol, *UFU*	Mishniev Roman, *Belgorod National Research University*	Gargi Goswami, *GITAM Institute of Science, GITAM (Deemed to be University)*	Mi Yan, *Zhejiang University of Technology*	Shori Mzamo *University of KwaZulu-Natal*
Fernanda Leite Lobo, *UFC*	Sysoev Alexander, *National Research University "Moscow Power Engineering Institute"*	Saurabh Pandey, *Indian Institute of Technology Patna*	Yi Wang, *The University of Hong Kong*	Mavhandu-Ramarumo Lufuno Grace, *University of Venda*
Jaime Andres Lozano Cadena, *UFSC*	Ignatiev Evgenii, *National Research University "Moscow Power Engineering Institute" (MPEI), Institute of Hydropower and Renewable Energy (IHRE)*	Sonal Thengane, *Indian Institute of Technology, Roorkee*	Jiebei Zhu, *Tianjin University*	Ramdas Vastira *University of Pretoria*
Claudio Miceli de Farias, *UFRJ*	Pyakillya Boris, *Tomsk Polytechnic University*	Vijaykumar Jadhav, *SRTM University*	Yijun Cui, *Nanjing University of Aeronautics and Astronautics*	Moola Sabihah *University of South Africa (UNISA)*
Italo Fernando Scota Cunha, *UFMG*	Prikhodko Elena, *Financial University under the Government of the Russian Federation*	Deepika Koundal, *University of Petroleum & Energy Studies*	Xiaoshuai Sun, *Xiamen University*	Bolton Larisse *South African DSI-NRF Centre of Excellence in Epidemiological Modelling and Analysis (SACEMA), Stellenbosch University, South Africa*
Luiz Fernando Bittencourt, *Unicamp*	Alekseev Anton, *Peter The Great Saint Petersburg Polytechnic University*	Durga Prasad Bavirisetti, *VIT Bhopal University*	Yiyi Zhou, *Xiamen University*	Msolo Luyanda *University of Fort Hare*
Pedro Pedrosa Rebouças Filho, *IFCE*	Parfenov Denis, *Orenburg State University*	Rajalekshmi Kishore, *National Institute of Engineering, Mysore*	Fei Chao, *Xiamen University*	Mkhwanazi Blessing *University of KwaZulu-Natal*
Rodrigo de Souza Couto, *UFRJ*	Rui Nikolai, *Peter The Great Saint Petersburg Polytechnic University*	Udit Satija, *Indian Institute of Technology, Patna*	Qingqing Sun, *Zhengzhou University* Xiaoshuai Sun, *Xiamen University*	Khambule Lungile, *University of Witwatersrand*

Bruna Leticia Land	Buiakov Ales, *Institute of Strength Physics and Materials Science of Siberian Branch Russian Academy of Sciences - Laboratory of nanobioengineering*	Kumar Ankit, *Indian Institute of Science, Bengaluru*	Junchao Zhao, *University of Science and Technology of China*	Poswa Sandiswa, *Trevir Clothing, South Africa*
Dariel Pereira da Silva	Agarkova Ekaterina, *Osipyan Institute of Solid State Physics RAS*	Korobi Konwar, *Tezpur University*	Jiang Li, *Nanjing University of Aeronautics and Astronautics*	Meth Randolph, *RMTT Solutions, South Africa*
João Pedro de Goes Novochadlo	Rimskaya Elena, *Moscow Institute of Physics and Technology*	Rajesh Yadav, *Indian Institute of Science*	Jie Li, *Xiamen University*	
Wanghley Soares Martins	Mutallibzoda Sherzodkhon, *K.G. Razumovsky Moscow State University of Technologies and Management (the First Cossack University)*	Sadiya Waseem, *Fellow, CSIR-National Physical Laboratory*	Huafeng Kuang, *Xiamen University*	
		Sanjeeo Doltade *Indian Institute of Technology, Hyderabad, India*	Junyi Gao *Peking Union Medical College Hospital, China*	

Participant presentations

Day 2

Healthcare

1. **Bruno Campos Janegitz,**
   UFSCar, Brazil

Topic: Development of biosensors for clinical diagnosis

The research dealt with the development of sensory platforms to diagnose differences in diseases such as such as Parkinson's, Alzheimer's and COVID-19. This was explored through the preparation of low-cost electrochemical devices with conductive inks and 3D printing, which have high added value that can generate patents and future marketable products were approached.

2. **Yulia Kotova**,
   Burdenko State Medical University, Russia

Topic: Viral load as a risk factor for the development of coronary atherosclerosis

The research project dealt with an extensive study of the Herpesviridae infecting humans through the data from a conducted factor analysis. The results showed the influence of studied viruses on coronary atherosclerosis and suggested a relationship of high seropositivity to HSV-1 and cytomegalovirus with atherosclerosis.

3. **Maobin Xie,**
   Guangzhou Medical University, China

Topic: Silk-based controllable drug delivery and biomedical applications

The research dealt with the background and progress of silk-based drug delivery and biomedical applications.

4. **Aravind Kumar,**
   Indian Institute of Technology Hyderabad, India

Topic: Nano-theragnostic for cancer and other biomedical applications

The research dealt with the recent advancements in Nano-theragnostic for cancer and other biomedical applications at IIT Hyderabad.

5. **Lufuno Grace Mavhandu-Ramarum,**
   University of Venda, South Africa

Topic: Using stool for community-based surveillance of SARS-CoV2 in rural South Africa – A proof of concept

The study aimed to explore the use of a Stool Based Epidemiology (SBE) surveillance system for tracking COVID-19 trends in the Limpopo Province, South Africa.

6. **Ming Li,**
   Kunming Institute of Zoology, China

Topic: Genetic Basis of Psychiatric Disorders: Insights into Disease Mechanisms and Intervention

The research examined the genetic basis of psychiatric disorders in human populations and attempted to uncover the biological mechanisms using cellular and animal models. The project identified several potential therapeutic targets.

7. **Emil Bulatov,**
   Kazan Federal University, Russia

Topic: CAR- T cell therapy

8. **Bruno Cogliati,**
   University of Sao Paulo

Topic: Role of connexin and pannexin (hemi)channels in liver diseases: new insights into cellular communication

The presentation dealt with the implication of connexins 43, 32 and 26 and pannexin-1 in acute and chronic liver injuries, namely acute liver failure, liver fibrosis/cirrhosis, nonalcoholic steatohepatitis, and hepatocellular carcinoma. The research demonstrated that (hemi)channels inhibition by mimetic peptides was able to ameliorate liver function and tissue structure.

9. **Subrota Hati,**
   Kamdhenu University, Gujarat, India

Topic: Influence of Lactobacillus cultures on growth performance, fecal microbiota, blood profile and cholesterol contents by replacing antibiotics as growth promoter in broilers.

The presentation dealt with the potent probiotics in poultry feeds. The research suggested that with the feeding of potent probiotics in poultry feeds, antibiotic free eggs and meat can be produced to prevent antibiotic resistance among organisms.

Energy Solutions

1. **Jiaqing Xiong,**
   Donghua University, China

Topic: Energy harvesting and self-powered sensing

2. **Balaji Kumar,**
   Vellore Institute of Technology, India

Topic: The pathway to sustainable cooling and heating

The presentation discussed the energy, emission, and social cost of carbon for different cooling and heating systems based on the need for passive cooling systems in BRICS countries.

3. **Sokolovsiky Pavel,**
   N.D. Zelinsky Institute of Organic Chemistry Russian Academy of Sciences, Russia

Topic: Effective catalyst based on zeolite modified polycations transition metals for purification of flue gas thermal power from sulfur and nitrogen dioxide

4. **Carolina P Naveira,**
   UFRJ, Brazil

Topic: Sustainable poly cogeneration plants

The presentation and the underlying research proposed a vision to integrate an efficient renewable energy system - water cooled HCPVs - with waste heat recovery technologies for food and pharmaceutical storage, freshwater production, and efficient biodiesel production, will demonstrably contribute to solving the multi-prong food, energy, water, and environment nexus problems. The integrated system is expected to promote sustainable Brazilian growth and be well-suited for communities with lack of electricity/water/fuel/conservation and/or remote locations without infrastructure for research/humanitarian/mining/extractive activities.

5. **Gumbi Bhekumuzi,**
   University of KwaZulu-Natal, South Africa

Topic: Catalysis and Materials Science

The presentation discussed ground coffee waste being transformed to Porous Carbon Electrode Material for Capacitive Deionization and Supercapacitor via hydrothermal synthesis method by varying amounts of ZnCl2, an activating agent. The coffee-derived carbon was characterized using Fourier transform infrared spectroscopy (FTIR) and Brunauer Emmett Teller (BET). The electrochemical and capacitive performance of carbon materials was comparatively studied by cyclic voltammetry (CV), electrochemical impedance spectroscopy (EIS) and galvanostatic charge-discharge (GCD) using potentiostat instrument.

6. **Xin Yang,**
   Shandong University of Science and Technology, China

Topic: Opto-electronic materials and devices

7. **Mishnev Roman,**
   Belgorod National Research University, Russia

Topic: New martensitic steel for increasing energy efficiency of fossil power plants. On the way to the clear energy

8. **Sonal Thaengane,**
   Indian Institute of Technology Roorkee, India

Topic: Thermochemical processes for sustainable alternate fuels and products

The presentation discussed the immense potential of Biomass to contribute to the agricultural and rural development, mitigation of climate change, energy security, and a range of other innovative products. The project deal with the areas of utilizing residual biomass from agriculture, forestry, food processing industries, and MSW for the production of energy, fuels, chemicals, and other useful products, primarily through thermochemical processes.

9. **Daniel Lachos Perez,**
   UFSM, Brazil

Topic: Catalytic hydrothermal liquefaction of corn cob to bio-oil production: Effect of catalysts and optimization study

The project aimed to find environmentally friendly and innovative technological routes for the best use of rice production residues. Though the use of such raw material had been widely studied in Brazil, a vast majority of these works presented outdated technologies and the use of toxic solvents. Therefore, each step of this project, from extraction with supercritical CO2 to the production of bio-oil, constituted a possibility to explore the economic potential of the matrix, using the integration of so-called green technologies (supercritical and hydrothermal technology).

Cyber Physical Systems

1. **Yijun Cui,**
   Nanjing University of Aeronautics and Astronautics, China

Topic: Lightweight Programmable RO PUF for the Security of Edge Computing

The presentation discussed the lightweight physical unclonable function (PUF) for the security of edge computing, based on the unique physical variations. The proposed lightweight PUF, observed as unique, reliable and uniform can be used in applications with high security requirements, more specifically cryptography.

2. **Deepika Koundal,**
   University of Petroleum and Energy Studies, India

Topic: Cyber Physical Systems Based Intelligent Healthcare Diagnostic System

The presentation proposed to develop DENT-CARE, a novel sensor-based oral-care decision support and nudging cyber physical system. The system has a completely automated plug and play installation in home setting and a fusion of camera images and sensor data.

3. **Boris Pyakillya,**
   Tomsk Polytechnic University, Russia

Topic: Deep learning model for molecular generation

The presentation discussed constrained molecular generation by means of deep learning generative models. The approach was able to consider some molecular properties like lipophilicity, solubility, and toxicology.

4. **Claudio Miceli de Farias,**
   UFRJ, Brazil

Topic: Building Embedded Machine Learning Systems for Industry 4.0

The presentation aimed to show a way to build reliable embedded ML applications for Industry 4.0 that are adaptive and context aware.

5. **Doorsamy Wesley,**
   University of Johannesburg, South Africa

Topic: Cyber Physical Systems and Artificial Intelligence in Health Care: Transforming the Industry with Technology

The presentation discussed an experimentally developed Smart Remote Healthcare System (e-Mutakalo) that was robust, low-cost, scalable and modular solution for remote monitoring and observation of patients.

6. **Xioshui Sun,**
   Xiamen University, China

Topic: Artificial Intelligence

The presentation introduced Media Analytics and Computing Lab at the Xiamen University, and presented the recent research projects on cross-modality media analysis and interaction.

7. **Alekseev Anon,**
   Peter the Great Saint Petersburg Polytechnic University, Russia

Topic: Control as a Service: Cloud Distributed Control Systems

The presentation discussed the role of service-oriented architecture to create scalable, flexible process automation systems. This will enable the use of legacy plc and dcs and cloud virtual dcs together.

8. **Italo Fernando Scota,**
   UFMG, Brazil

Topic: Bridging Resources for Internet Cybersecurity

The presentation introduced two systems that could be used to study internet routing and track malicious content on the internet.

Innovators

1. **Junchao Zhao,**
   University of Science and Technology, China

Topic: "Energy and Environment: Development of a new ultra-fine dry powder for fire extinguishing"

The presentation aimed to provide an oil repellent ultra-fine dry powder to prevent re-ignition and speed up the fire extinguishing process in the case of oil pool fires. The results of the study showed that the fire extinguishing time could be cut in half and the re-ignition problem could be solved by this. The solution aims to help BRICS countries to improve fire security especially in rural areas.

2. **Kumar Ankit,**
   Indian Institute of Science, Bangalore, India.

Topic: "Multi-Agent Collaborative Framework for Automated Agriculture"

3. **Buiakov Ales,**
   Institute of Strength Physics and Materials Science of Siberian Branch, Russian Academy of Sciences, Russia

Topic: Personalized Osteoimplantology

The study found that reconstructing the structure of an inorganic bone matrix in absolutely bioinert oxide ceramic will exhibit osteoinductive properties - The bone tissue grows inside porous ceramic. The research also found a unique technology for high-precision molding of ceramic products with complex geometry and resulted in the creation of personalized ceramic implants.

4. **Bruna Leticia Land,**
   Brazil

Topic: Device that helps to reduce Fibromyalgia chronic pain

The research by Relieve to Live, a startup that focuses on natural and portable treatment, developed Anavita, a strip containing two controllable and mobile heating points for patients suffering from Fibromyalgia.

5. **Jiang Li,**
   Nanjing *University of Aeronautics and Astronautics, China*

Topic: Hardware information security

The project titled, Fingerprint of the Device (FOIC)-The Guardian of Industrial Internet Security, used a unique algorithm to extract the subtle differences in temperature, silicon impurity and dopant concentration during the processing of integrated circuits and use these differences to generate a chip's key function.

6. **Korobi Konwar,**
   Tezpur University, India

Topic: Development of smart theragnostic agent for Cancer diagnosis using Zinc Ferrite nanorod embedded in Manganese Oxide 2D nano system

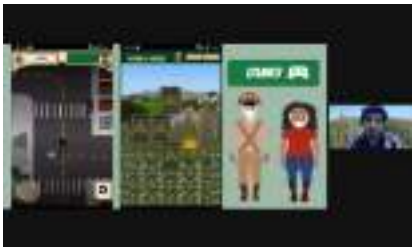
The presentation discussed the development of a Zinc Ferrite nanorod embedded with 2D manganese Oxide system. The superparamagnetic Zinc ferrite has the demagnetizing interaction among the nanoparticles which can help to release heat during the spin relaxation for cancer tissue damage, and paramagnetic 2D flakes help to enhance the imaging property. The system can be considered as a drug delivering host for future research in the scientific community.

7. **Agarkova Ekaterina**
   Osipyan Institute of Solid-State Physics RAS, Russia

Topic: Metal-supported SOFC as a perspective power source

The presentation discussed the development of solid oxide fuel cells (SOFC) stacks, an electrochemical device which converts energy of chemical reactions to electricity and high potential heat. The SOFC unit presents a multilayered ceramic stack.

8. **Darlei Pereira da Silva,**
   Brazil



Topic: Mobbilizy (Education + Health Care = - Diseases)

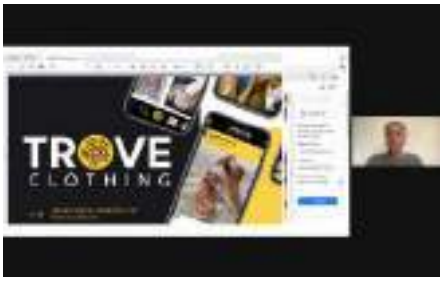
The presentation discussed the development of Mobbilizy, an application that aims to mobilize young people to practice and create habits that helps reduce the spread of diseases. The game's strategy lies in making learning more fun through games, content and social media with gamification.

9. **Jie Li**
   Xiamen University, China

Topic: Artificial Intelligence

The presentation discussed assessing the vulnerability of AI models before deploying them under weak knowledge situations. The presenter also suggested a series of methods to handle the risks and form an evaluation system.

10. **Poswa Sandiswa,**
    Trove Clothing, South Africa



Topic: An Inclusive Approach to Textile Waste

The presentation introduced 'Trove', a fashion marketplace designed to empower users through the purchase and sale of pre-loved fashion and accessories. The platform collaborated with local sellers and shoppers to re-invent the way people buy and wear fashion.

Day 3

Healthcare

1. **Barnali Biswas,**
   ICMR National Institute for Research in Reproductive Health, India

Topic: Sugar Logistics gone wrong in Male Infertility

Glycosylation is the most abundant and varied post-translational modification of proteins and is a critical factor in regulating men's biological functions. The presentation discussed the correlation between deficiency of N-glycosylation and male infertility.

2. **Yastira Ramdas,**
   University of Pretoria, South Africa

Topic: Intraoperative Radiotherapy: A First in Africa

IORT is an innovative solution to manage early-stage breast cancers, by aiming to reduce treatment times in developing countries. The presentation discussed the first two years in operation of the first and only Intraoperative radiotherapy (IORT) centre in Africa. It characterized the patients treated, highlighted successful treatment of 107 patients and how IORT is a viable option for developing countries.

3. **Ti-Fei Yuan,**
   Shanghai Mental Health Center, China

Topic: Neuromodulation to treat drug addiction.

The presentation examined neuroplastic changes in addicted brain and developed targeted therapies to treat drug addiction. Non-invasive brain stimulation approaches were employed to probe potential changes in cortical connectivity and have been proved to be effective in reducing craving for drug, stopping impulse actions and may treat relapse.

4. **Elima Hussain,**
   Institute of Advanced Study in Science and Technology, India

Topic: Will translation of Artificial Intelligence for the diagnosis of chronic diseases remain a challenge for long? – A perspective with special reference to cervical cancer

Cervical cancer is the second most prevalent cancer amongst females in India. The presentation introduced a robust artificial intelligence-based software using Pap smear images to detect abnormal growth or development of tissues in the cervix — the lower part of the uterus that connects to the vagina. The software which has completed the proof-of-concept stage is expected to bypass the low-quality screening tests for cervical cancer in the country.

5. **Fernanda Ferreira Cruz,**
   UFRJ, Brazil

Topic: Regenerative medicine in Pulmonology

The presentation discussed regenerative medicine of the respiratory system, such as stem cell therapy, using mesenchymal stromal cells, their extracellular vesicles, and mitochondria. Treatment with MSCs derivatives has been observed for being able to improve lung and distal organs dysfunctions and might be used for the treatment of chronic and acute lung diseases.

6. **Moola Sabha,**
   University of South Africa (UNISA), South Africa

Topic: Interactive Diabetes Care – A South African theoretical model for HCP – Patient Interaction

The study developed a unique conceptual model from a patient's perspective, for diabetic care, in a South Africa public health care context.

7. **Jing Yang**,
   National Center for Protein Science, China

Topic: Mapping and Quantifying the Cysteine Redoxome

The presentation discussed the development of several peptide-centric chemo proteomic approaches to globally map and quantify redox modifications, including S-sulfenylation, S-sulfinylation, S-persulfidation, S-nitrosylation, and S-glutathionylation, in mammalian and plant proteomes, thus providing a great opportunity to study cysteine-mediated redox networks in a range of biological processes and adaptive responses in physiology and pathophysiology.

8. **Subhash NN,**
   Spree Chitra Tirunal Institute for Medical Sciences and Technology, India

Topic: An Institution making a difference

The presentation discussed the SCTIMST ecosystem, which has been instrumental in establishing a medical device industry base in India by successfully developing and commercializing technologies of a number of devices and implants. Other aspects covered during the presentation included the work on Orthotics and Rehab, Reliability of medical devices, Covid19 fast track programs, Lab to market translations and industry engagement in healthcare research.

9. **Timin Alexander,**
   Peter the Great Saint Petersburg Polytechnic University, Russia

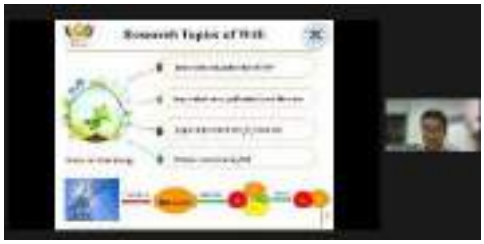
Topic: Development of Hybrid Carriers of Alpha emitters to improve the effectiveness of radionuclide therapy.

Energy Solutions

1. **Mathumba Penny**,
   Mintek, South Africa

Topic: Band gap – engineered graphene quantum DOTS (GQDS) for application as donor materials in Schottky junction solar cells

2. **Mi Yan,**
   Zhejiang University of Technology, China



Topic: Waste to Energy for City Sustainable Development: China case

The research dealt with the process of waste to clean energy through:

1. Incineration and gasification of MSW
2. Supercritical water gasification for wet bio-waste
3. Syngas improvement (CO2/H2S removal)
4. Pollution control during WtE

3. **Gargi Goswami,**
GITAM Institute of Science, India

Topic: Microbial Bio-Resource for Production of Biofuels - An Industrial Biotechnology Perspective

The presentation discussed the development of bioprocess for industrially relevant products through three key aspects of industrial biotechnology - Upstream process (strain isolation & strain development), midstream process (fermentation involving process optimization and process engineering) and downstream process (separation and purification). Emphasis was given to achieve environmental sustainability and economic feasibility of the process.

4. **B Kiran Naik,**
   National Institute of Technology Rourkela, India

Topic: Sorption based mobile thermal energy storage for district heating/cooling system

The research provided sustainable solutions to resolve the energy demand in the building sector by developing a solar-driven liquid desiccant air conditioning system. A flat plate membrane-based energy exchanger (FMEE) would supply fresh air and desalinated water simultaneously.

5. **Edson Nossol,**
   UFU, Brazil

Topic: Hexacyanoferrates/carbon nanostructures films as cathodes for transparent and thin batteries

The research focused on the preparation of composite films between carbon nanotubes (CNTs), reduced graphene oxide (rGO), and hexacyanoferrates (HEX), resulting in obtaining free-standing films. The preparation of a transparent electrode could open up the possibility to construct a clear battery and, as a consequence, to make whole devices (cell phones, tablets, cameras, watches) transparent.

6. **Maumau Thandiwe,**
   University of Johannesburg, South Africa

Topic: Emphasis of Fuel Cell Technologies for Sustainable Energy Solutions

The presentation emphasized the need to invest in research towards fuel cells based on their potential.

7. **Yi Wang,**
   The University of Hong Kong, China

Topic: Data Analytics for Digitalized Power and Energy Systems

The research focused on smart energy distribution and consumption of the power systems to address the challenge of REF of power and energy systems with renewable energy integration, from three aspects:

a. Data-driven electricity consumer behavior modeling.
b. Short-term probabilistic electrical load forecasting
c. Modeling and planning of multi-energy systems.

8. **Saurabh Kumar Pandey,**
   Indian Institute of Technology Patna, India

Topic: Recent Trends & Developments in Perovskite Photovoltaic"

The presentation discussed the theoretical and experimental aspects of optoelectronics devices. The Sensors and Optoelectronics group has been actively involved in diverse research domains including design, fabrication, testing, and packaging of high-performance applications:

a. Optoelectronic devices such as LED/Photodetectors
b. Photovoltaic
c. Biochemical sensors to detect toxic gases and chemicals in water, domestic and industrial environment.

d. **Sysoev Alexander,**
   National Research University, Russia

Topic: Model unification of elements of hydropower plants for authorized design, management, and training systems

The presentation discussed the idea to unify the elements located in hydropower plants, develop their models to increase the accuracy and quality of simulation modeling of elements of hydropower stations. A hydroelectric power station model created using these elements, will make it possible to investigate the connection between the cascades of stations located both near each other and at a distance.

Cyber Physical Systems

1. **Els Floyd,**
   University of Fort Hare, South Africa

Topic: An Access-Utilization Framework to Improve Academia-Industry Collaboration: A Case Study of the National Integrated Cyber-Infrastructure System in South Africa"

The presentation derived a practical access-utilization framework to improve collaboration between academia and industry:

a. To explore the current role of the National Integrated Cyber-Infrastructure in South Africa.
b. To determine the challenges and issues impacting the implementation of high-performance computers within South Africa.
c. To identify the critical factors that will ensure the successful utilization of high-performance computing in South Africa.

2. **Yiyi Zhou,**
   Xiamen University, China

Topic: Deep Learning, Vision and Language

The presentation discussed 'Referring to Expression Detection', a new flexible way for object recognition and detection. It tasks locating the target objects in the image according to natural language instructions.

3. **Rajalekshmi Kishore,**
   National Institute of Engineering, India

Topic: Low-power, spectrally efficient techniques for cyber physical systems

The presentation discussed building energy efficient communication systems for 5G and networks beyond – Achieved by integrating Intelligent Reflecting Surface (IRS) in Cognitive Radio Based IoT System to enhance both spectral and energy efficiency of IoT based application.

4. **Durga Prasad Bavirisetti,**
   VIT Bhopal University, India

Topic: Multi-Agent Collaborative Framework for Automated Agriculture

The presentation discussed computer vision problems related to autonomous driving such as lane line detection, traffic sign identification, steering angle prediction, road damage detection and 3D object detection on LiDAR point clouds.

5. **Luiz Fernando Bittencourt,**
   Unicamp, Brazil

Topic: The computing continuum: managing computing and networking from the edge to the cloud

The presentation suggested bringing together scattered computing services through proper resource allocation, management and distributed machine learning techniques. In such a scenario, the computing continuum will be able to compose an intelligent distributed infrastructure that better understands data generated by Internet of Things devices and also supports a large variety of heterogeneous applications.

6. **Sithungu Siphesihle,**
   University of Johannesburg, South Africa

Topic: Exploring the use of Immunologically Inspired Artificial Intelligence for the Protection of Industrial IoT Systems through the Generative Adversarial Machine Learning Approach

The presentation proposed a novel Generative Adversarial Artificial Immune Network (GAAINet) to potentially improve the quality of intrusion detection algorithms. GAAINet is an Artificial Immune Network-based generative adversarial model for intrusion detection in Industrial IoT (IIoT) systems.

7. **Fei Chao,**
   Xiamen University, China

Topic: Application of GAN and reinforcement learning

This presentation introduced a Generative Adversarial nets-based calligraphic robotic framework, which enabled a robot to learn writing fundamental Chinese strokes with rich diversity and good originality. The policy gradient commonly used in reinforcement learning is thus adapted in this work to train the generative module by regarding the outputs from the discriminative module as rewards.

8. **Udit Satija,**
   Indian Institute of Technology Patna, India

Topic: Energy-Efficient Io enabled Smart Health Systems for Cardiac and Mental Health Monitoring

The presentation discussed the development of an ‘on - resource-constrained edge device’ with cardiac and brain signal analysis applications which should be energy efficient to avoid frequent battery replacement and false alarms.

9. **Rul Nikolai,**
Peter the Great Saint Petersburg Polytechnic University, Russia

Topic: The development of the silicon spin-transistors for quantum computing at room temperatures

The presentation discussed the development of silicon spin-transistors for quantum computing at room temperature. The on-going project, which could potentially be used as a basis for quantum computing, considers the possibility of using the silicon nano sandwich-structures as a solid instrumental base for the high-temperature quantum computational systems creation.

Innovators

1. **Rajesh Yadav,**
   Indian Institute of Science, India

Topic: “UniFluVac: Development of the novel Universal Influenza Vaccine”

The presentation discussed UniFluVac, a universal influenza vaccine that is long-lasting and effective against multiple influenza strains regardless of viral subtypes, antigenic drift, or shift.

2. **Rims kaya Elena,**
   Moscow Institute of Physics and Technology, Russia

Topic: "Mobile application for self- rapid assessment of human skin for the early detection of skin melanoma"

The presentation discussed a mobile application that implements the possibility of image registration, recognition and processing of a calibration standard, recognition of a pigmented lesion and measurement of its parameters, calculation of malignancy probability, and also generates a conclusion to consult a dermatologist if the malignancy probability is more than 60 per cent. A characteristic feature of the developed application is the use of a calibration standard.

3. **João Pedro de Goes Novochadlo,**
   Brazil

Topic: Technology as a Path to Social Inclusion

The presentation introduced 'Veever', an application with micro-location devices, mobile applications, cloud computing, and artificial intelligence to facilitate the interaction and mobility of people with visual impairments indoors and outdoors through a voice assistant.

4. **Huafeng Kuang,**
   Xiamen University, China

Topic: Artificial Intelligence

The presentation focused on face security, including deep face detection, live detection, and adversarial defense, to ensure the safe operation of the face certification system through three methods:

a. Multi-modal multi-layer fusion framework
b. Multi-modal weight-adaptive block
c. Geometry-based adversarial training.

5. **Sadiya Waseem,**
   CSIR-National Physical Laboratory, India

Topic: Carbon Fiber Composites for Advanced Energy Application

The presentation discussed synthesized carbon-carbon composite paper and optimization of its properties to use as a gas diffusion layer of a proton exchange membrane fuel cell. This has been successfully used to assemble ingenious PEMFC and as an anode
of sodium ion batteries.

6. **Mutallibzoda Sherzodkhon**
   K.G. Razumovsky Moscow State University of Technologies and Management, Russia

Topic: The development of technology for enriched dietary chocolate for consumers with a predisposition to the folate cycle

The presentation discussed the folate cycle, one of the most important processes in our bodies. A disruption to the cycle can increase the risk of cardiovascular disease. Biologically active forms of vitamins B6, B9, B12-pyridoxine, methyl folate, and methyl cobalamin can control the risk of developing the disease.

7. **Wanghley Soares Martins,**
   Brazil

Topic: System for inertial data collection and data visualization for individualized medicine with a focus on Parkinson's disease

The research introduced ‘Motion Sense’ as an innovative end-to-end system to help in the diagnosis, prognosis, and treatment of neuromotor disorders – such as Parkinson's Disease. The system offers a fully integrated system from hardware to software, with very low costs, and focused on neuromotor diseases. The use of non-invasive diagnosis, prognosis, and treatment guarantees a better quality of life for people with Parkinson's disease.

8. **Junyi Gao**
   Peking Union Medical College Hospital, China

Topic: “Medicine and Healthcare”

The project applied deep learning technology in video real-time digital processing to assist surgeons in reducing the impact of smoke on the field of vision, rapid recognition of bleeding areas, gauze, and key anatomical structures.

9. **Sarjerao Doltade**
   Indian Institute of Technology, Hyderabad, India

Topic: Chemical free agro- processing system

The project developed technology to process juices and vegetable purees through the cavitation principle without requiring any chemicals / filters / heat to process it.

10. **Meth Randolph**
    RMTT Solutions, South Africa

Topic: Silicon Energy – Advanced renewable energy solutions

Day 4

Healthcare

1. **Francyne Kubaski,**
   HCPA-UFRGS, Brazil

Topic: Newborn screening for rare diseases in Brazil

The presentation highlighted the importance of Newborn screening (NBS) to identify very progressive multisystemic diseases that can be treated before irreversible life-threatening symptoms have arisen. This impact is so significant that the Centers for Disease Control and Prevention (CDC) considers NBS one of the ten great public health achievements of the 21st century.

2. **Bolton Larisse,**
   SACEMA Stellenbosch University, South Africa

Topic: Translating past red blood cell (RBC) usage trends into predictions for the future: Insights for the South African National Blood Service (SANBS)

The presentation dealt with the development of a predictive model that used historical RBC usage trends and predicted future RBC usage, as well as enabled scenario investigation for different transfusion incidence between the public and private healthcare sectors.

3. **Weijie Guan,**
   Guangzhou Medical University, China

Topic: COVID-19; chronic airway inflammatory diseases

The presentation described the clinical characteristics and management measures by Chinese researchers since the outbreak of the COVID-19 pandemic. These included delineating the clinical characteristics of hospitalized patients, developing AI-informed predictive and images-based diagnostic models, evaluating the efficacy of repurposed drugs, and research and development of practical products for rapid laboratory diagnostics.

4. **Idrisov Bulat,**
   Moscow Institute of Physics and Technology, Russia

Topic: Measuring Progress in Health Globally

The presentation introduced how health loss is measured and demonstrated one of the tools used to measure health burden globally. Insights from the Global Burden of Disease study, conducted in collaboration with more than seven thousand scientists globally was shared.

5. **Mkhwanazi Blessing,**
   University of KwaZulu-Natal, South Africa

Topic: Corrected QT (QTc) calculation in diabetic patients with and without HIV infection. Are all methods equal?

The work sought to investigate how diabetes mellitus and HIV infection influence long corrected QT (QTc), an important marker for cardiovascular dysfunction and sudden cardiac death.

6. **Stepanov Grigory,**
   Institute of Chemical Biology and Fundamental Medicine SB RAS, Russia

Topic: Genome Editing in Biomedical Research

The presentation described the research by the Laboratory of Genome Editing from ICBFM SB RAS with genome editing systems and their implementation in human disease control strategies. The combined use of genome editing strategies, synthetic biology and high-throughput analysis allows the creation of cell lines with the desired properties for research and biotechnology.

7. **Ives Cavalcante Passos,**
   HCPA-UFRGS, Brazil

Topic: Prediction of suicide attempts in a national representative sample using machine learning techniques

The presentation showed a model using artificial intelligence to predict suicide attempts in a national representative sample.

8. **Khambule Lungile,**
   University of Witwatersrand, South Africa

Topic: A second look into Gestation diabetes screening in Africa

The presentation dealt with enhancing and improving the screening of Gestational diabetes / hyperglycemia first discovered in pregnancy. Early screening is paramount for the prevention and monitoring of GDM. The project sought to identify novel biomarkers that will be incorporated to currently used criteria to screen women at risk of GDM, combining patient history, anthropometric indices, and biochemical markers.

Energy Solutions

1. **Fernanda Leite Lobo,**
   UFC, Brazil

Topic: Wastewater into Energy: How microbial fuel cells can make that happen

The presentation explained the unique capability of microbial fuel cells (MFC) to convert any biodegradable substrates, especially waste materials, into renewable electricity. MFCs were described as an ideal waste treatment and renewable energy solution for decentralized or remote villages as it provides both energy and sanitation infrastructure.

2. **Rama Haripriya,**
   University of KwaZulu-Natal, South Africa

Topic: Health Communication

The study established a basis for further development of the anaerobic digestion process at cold temperatures for a downstream energy solution to energy insecure smallholder farms and rural communities.

3. **Jiebei Zhu,**
   Tianjin University, China

Topic: Power Electronics Dominated Grids

4. **Sherverdiev Razhidin,**
   National Research University, Department of Hydropower and Renewable Energy Sources, Russia

Topic: Creation of a digital twin of a hybrid energy complex based on renewable energy sources

The project created a digital twin of a hybrid energy complex of guaranteed energy supply based on renewable energy sources. Mathematical models of operating modes of power plants based on renewable energy sources were developed as part of a hybrid energy complex while operating in parallel with various types of energy storage devices.

5. **Ignatiev Evgenii,**
   National Research University (MPEI), Institute of Hydropower and Renewable Energy (IHRE), Russia

Topic: Software package for wind energy calculations Wind Turbine

6. **Jamie Lozano Cadena,**
   UFSC, Brazil

Topic: From wine coolers to air conditioning systems operated by magnetic refrigeration units

The presentation suggested magnetic refrigeration as an alternative solution for cooling and heating applications. Two innovative TRL-6 products were presented: a 31-bottle magnetic wine cooler and a 9000-Btu/h air conditioner prototypes.

7. **Shozi Mzamo,**
   University of KwaZulu-Natal, South Africa

Topic: Applied Mathematics; Mathematical modelling; data analytics; blood systems research

The presentation suggested transition to more bio-based production systems and sugar alcohols such as sorbitol and xylitol, in the wake of depleting fossil fuels. Sorbitol is obtained from the hydrogenation of glucose, while xylitol is obtained from the hydrogenation of xylose. These two sugar alcohols can be converted into valuable chemicals through hydrogenolysis, a catalytic reaction involving the cleavage of a chemical bond with the simultaneous addition of a hydrogen atom.

8. **Vijaykumar Jadhav,**
   SRTM University, India

Topic: Energy Storage Device Fabrication and application

The presentation presented fabrication of symmetric and asymmetric supercapacitors using metal oxide and its performance.

Cyber Physical Systems

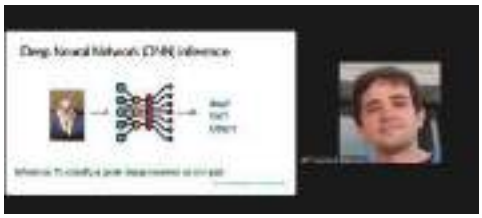
1. **Pedro Pedrosa Reboucas,**
   IFCE, Brazil

The presentation discussed the recent advances developed in cyber physical systems in real applications.

2. **Qingqing Sun,**
   Zhengzhou University, China

Topic: Layer-by-Layer Printing Strategy for High-Performance Flexible Devices to 3D Integration

The presentation reported a layer-by-layer printing strategy for high-performance flexible electronics including 3D circuits and thin-film transistors (TFTs).



3. **Rodrigo de Souza Conto,**
   UFRJ, Brazil

Topic: Deep neural network inference offloading

End devices in cyber-physical systems can have low processing capacity, and deep neural network inference is offloaded to the cloud. The presentation introduced techniques to provide efficient inference offloading, leveraging edge computing techniques.

4. **Denis Parfenov,**

Orenburg State University, Russia

Topic: Investigation of Feature Engineering Methods for Identifying Attacks in the VANET

5. **Elena Prikhodko,**
   Financial University under the Government of Russian Federation, Russia

Topic: Supply Chain Smart Management

The presentation introduced a product that helps supply chain members to increase their value based on a neural network blockchain technology

GROUP PHOTO

Annexure –I
List of all the Applicants

BRICS Young Scientists Forum (BRICS-YSF)

Application No.	Name, Designation & Institution	Date of Birth	E Mail Id	Subject applied for	Category Applied For
01	Subham Banerjee Assistant Professor National Institute of Pharmaceutical Education and Research (NIPER)-Guwahati	4 January 1985	subham.banerjee@niperguwahati.ac.in	Healthcare and it's applications	Healthcare
02	Ankit Varshney Doctoral student NIT Uttarakhand	7 June 1990	varshneyankit12@gmail.com	Energy	Energy Solutions
03	Palwinder Kaur PhD Scholar AcSIR-Central scientific Instrumentation Organisation	20 March 1992	palwinder.kaur@csio.res.in	Energy Solutions	Energy Solutions
04	Rishav Saraswat Chemical Engineer Madhav Institute of Technology and Science	1 June 2000	rishavsaraswat88@gmail.com	Energy Solutions	Energy Solutions

	Gwalior				
05	Nimrita Koul Assistant Professor REVA University	22 July 1981	nimritakoul01@gmail.com	Cyber Physical Systems	Cyber Physical system (CPS) and their applications
06	Ashutosh Tiwari Student Guru Ghasidas Vishwavidyalaya Bilaspur Chhattisgarh	10 April 1999	ashubio99@gmail.com	Healthcare	BRICS Innovators Prize
07	Sonal Thengane Assistant Professor IIT Roorkee	21 October 1987	sonalt@hre.iitr.ac.in	Energy Solutions	Energy Solutions
08	Balamurugan Srinivasan DBT-Ramalingaswami Fellow/Assistant Professor Bharathidasan University	24 December 1985	bala.svm@gmail.com	Energy Solutions-Renewable Energy	Energy Solutions
09	DEEPIKA KOUNDAL Assistant Professor University of Petroleum & Energy Studies	2 September 1982	koundal@gmail.com	Healthcare	Cyber Physical system (CPS) and their applications
10	Dr. Ayush Dogra	20 February 1988	ayush123456789@gmail.com	Medical Imaging	Health Care

	CSIR-Nehru Postdoctoral Researcher CSIR-CSIO (Research Lab - Government of India)				
11	Karthick Vasudevan Assistant Professor REVA University	-	-	-	-
12	TILBA THOMAS Doctoral Research Scholar APJ Abdul Kalam Technological University, Kerala	19 May 1989	-	-	-
13	Richa Research Fellow Banaras Hindu University	1 January 1993	richa.geophysics3@bhu.ac.in	Energy	Energy Solutions
14	Sarjerao Doltade NICE Fellow ITIC, Indian Institute of Technology Hyderabad	1 June 1991	sarjeraodoltade@gmail.com	Agro-processing	Health Care
15	Debanjan Chandra	20 March 1993	debanjanchandra@iitb.ac.in	Energy Solutions	Energy Solutions

	PhD student Indian Institute of Technology Bombay				
16	Prateek Bhojane Assistant Professor University of Petroleum and Energy Studies	23 July 1990	bhojane.prateek@gmail.com	Energy Solutions	Energy Solutions
17	Durga Prasad Bavirisetti Senior Assistant Professor VIT Bhopal University	20 May 1989	durga.prasad@vitbhopal.ac.in	2D & 3D Computer Vision and Machine Learning	Cyber Physical system (CPS) and their applications
18	Bukke Naik Assistant Professor Grade-II National Institute of Technology Rourkela	27 January 1991	naikkb@nitrkl.ac.in	Energy Solutions	Energy Solutions
19	Mitradip Bhattacharjee Assistant Professor Indian Institute of Science Education and Research (IISER) Bhopal	22 November 1990	mitradip@iiserb.ac.in	Healthcare	Healthcare
20	Dr. Bappi Paul Ramanujan	30 June 1990	bappipaulnits@gmail.com	Energy Solutions	Energy Solutions

	Fellow National Institute of Technology Nagaland				
21	Dr. Asha Patel Associate Professor Department of Pharmaceutics, Parul Institute of Pharmacy, Parul University	5 September 1985	ashaben.patel@paruluniversity.ac.in	Health Care (Nanotechnology intervention in cancer]	Health Care
22	Madhuri Rao Assistant Professor Siksha 'O' Anusandhan University	3 March 1982	madhurirao@soa.ac.in	Cyber Physical Systems and their Applications	Cyber Physical Systems and their Applications
23	Akshpreet Kaur DST INSPIRE JRF UIET, Panjab University, Chandigarh	20 July 1993	akshpreet9386@gmail.com	Healthcare	Healthcare
24	Aakansha Bhawsar Scientist Indian Council of Medical Research, ICMR, Headquarters, New Delhi.	3 January 1989	aakanshabhawsar3jan1989@gmail.com	Healthcare	Healthcare
25	K Madhuri Amulya	2 July 1995	madhurikamulya333@gmail.com	Healthcare	Healthcare

	Doctoral student L V Prasad Eye Institute and Manipal Academy of Higher Education				
26	Padmavathi Lakshmanan Principal Scientist Central Electronics Engineering Research Institute, Pilani	5 August 1981	cl.padmavathi@gmail.com	Energy Solutions	Energy Solutions
27	Ved Prakash Dwivedi Group Leader International Centre for Genetic Engineering and Biotechnology	15 July 1984	ved@icgeb.res.in	Health Care	Health Care
28	Dr.Rajalekshmi Kishore Associate Professor 4F-Lalith platinum,	6 October 1981	rajalekshmikishore@gmail.com	Cyber Physical system (CPS) and their applications	Cyber Physical system (CPS) and their applications S
29	Nimisha Roy Research Scholar Indian Institute of Information Technology,	10 September 1991	rss2017505@iiita.ac.in	Healthcare	Healthcare

	Allahabad				
30	Navneet Sharma Young Scientist Indian Institute of Technology Delhi	29 July 1988	navneetrssharmacore@gmail.com	Healthcare	Healthcare
31	Dr Barnali Biswas Dst Inspire Faculty Icmr-National Institute for Research in Reproductive	29 March 1982	barnali.biotech@gmail.com	Healthcare	Healthcare
32	Debangana Chakravorty Project Scientist NIRRH-ICMR	17 August 1989	-	-	-
33	Subhash N N Scientist/Engineer C in Department of Medical Device Engineering Sree Chitra Tirunal Institute for Medical Sciences and Technology (SCTIMST), DST, Govt. of India	14 October 1988	subhashnn@sctimst.ac.in	Healthcare	Healthcare
34	GARGI GOSWAMI Assistant Professor	27 July 1983	gargigoswami.83@gmail.com	Energy Solutions (Renewable Energy)	Energy Solutions

	GITAM Institute of Science, GITAM (Deemed to be University)				
35	Santanu Mukherjee Assistant Professor Shoolini University	28 March 1986	santanu@shoolinuniversity.com	Energy Solutions	Energy Solutions
36	Sunil Kumar Senior Research Fellow Malaviya National Institute of Technology, Jaipur	3 August 1989	sansaniwal@gmail.com	Energy Solutions	Energy Solutions
37	Sathish Kumar Ramachandran Associate Professor Saveetha Dental College, Ssaveetha University	25 June 1988	sathishkumar.sdc@saveetha.com	Energy Solutions	Energy Solutions
38	Saumya Patel Assistant Professor Gujarat University	5 June 1987	patelsaumya@gujaratuniversity.ac.in	Healthcare	Healthcare
39	Pankaj Srivastava Assistant	26 March 1982	psrivast@gitam.edu	Energy Solutions	Energy Solutions

	Professor GITAM (Deemed to be University), Visakhapatnam-530045, Andhra Pradesh				
40	Krishna Yashwanth Padarthi PhD IIT Kharagpur	16 November 1993	yashwanth.padarthi790@gmail.com	Energy Solutions	Energy Solutions
41	Leo D Principal Scientist NTCPWC, Department of Ocean Engineering, Indian Institute of Technology	6 May 1985	leo@ntcpwc.iitm.ac.in	Ocean Engineering	BRICS Innovators Prize
42	Manoj Patel Principal Scientist CSIR-Central Scientific Instruments Organisation, Chandigarh	10 September 1986	manoj_patel@csio.res.in	Healthcare	Healthcare
43	Dr Nanoji Islavath Scientist CSIR-Indian Institute of Petroleum	8 June 1985	n.islavath@iip.res.in	Materials Science and Engineering, Energy	Energy Solutions
44	Vikash Shaw	3 December 1991	vikashshaw.aec@gmail.com	Healthcare	Healthcare

	PhD Scholar Academy of Scientific and Innovative Research				
45	Saurabh Pandey Assistant Professor Indian Institute of Technology Patna	12 July 1985	saurabh@iitp.ac.in	Energy Solutions	Energy Solutions
46	TUSHAR JAWARE Assistant Professor R C Patel Institute of Technology Shirpur Dist Dhule MS	3 December 1983	tusharjaware@gmail.com	Healthcare	Healthcare
47	Subrota Hati Assistant Professor Kamdhenu University, Anand, Gujarat	2 May 1984	subrota_dt@yahoo.com	Healthcare	Healthcare
48	Dr. Prabhpreet Kaur Assistant Professor Guru Nanak Dev University	17 April 1985	prabhpreet.cst@gndu.ac.in	Healthcare	Healthcare
49	-	-	-	-	-
50	Elima Hussain Research Scholar	9 October 1991	elimah82@gmail.com	Healthcare	Healthcare

	Institute of Advanced Study in Science and Technology Guwahati Assam				
51	Varsha B PhD Scholar AcSIR, Central Scientific Instruments Organisation (CSIR–CSIO)	9 January 1993	b.varsha90@gmail.com	biomedical application	Health Care
52	Sayoni Sarkar PhD scholar Indian Institute of Technology, Bombay	16 November 1996	sayoninitt@gmail.com	Healthcare	Healthcare
53	Mamatha Pillai Post-Doctoral Fellow Indian Institute of Technology Bombay	31 July 1986	mmpillai1@gmail.com	Healthcare	Healthcare
54	Balaji Kumar Assistant Professor (Senior) Vellore Institute of Technology	15 December 1988	balaji.kumar@vit.ac.in	Energy	Energy Solutions
55	Mukesh Kumawat Assistant Professor	4 April 1982	phmukesh@gmail.com	Drug Development and Discovery	Health Care

	School of Pharmaceutical Sciences, Apeejay Stya University				
56	Ashwani Kumar Tiwari Assistant Professor Jawaharlal Nehru University, New Delhi	24 July 1986	ashwaniktiwari@mail.jnu.ac.in	Environmental Sciences	Energy Solutions
57	Rajesh Yadav PhD Research Scholar Indian Institute of Science	16 September 1993	rajeshyadav@iisc.ac.in	Healthcare	Healthcare
58	Swati Varshney PhD Scholar Indian Institute of Technology, Delhi	6 October 1992	swatimicro92@gmail.com	Healthcare	Healthcare
59	Anne Kamatham Ph. D. Scholar Indian Institute of Technology, Delhi	11 August 1995	bmz208121@cbme.iitd.ac.in	Biomedical Engineering	Healthcare
60	Jayati Trivedi Senior Scientist CSIR- Indian Institute of Petroleum	11 August 1986	jtrivedi@iip.res.in	Energy solutions	Energy solutions
61	Janani	31 March	jananiradhakrishna	Health Care	Health Care

	Radhakrishnan DST - INSPIRE Faculty Fellow CSIR - Central Leather Research Institute	1989	n313@gmail.com		
62	Durgalakshmi D Assistant Professor - Inspire Faculty Anna University	13 July 1986	durgaklakshmi@gmail.com	Nanomaterials for Healthcare	Health Care
63	Saranya Jayapalan Research Associate Pondicherry University	30 September 1984	saranya.jgs@gmail.com	Health Care	Health Care
64	Achu Chandran Scientist CSIR-NIIST	12 June 1989	achuchandran@niist.res.in	Energy Solutions	Energy Solutions
65	Devendra Patil Assistant Professor Birla Institute of Technology and Science-Pilani (BITS-Pilani)	10 October 1985	devendrap@goa.bits-pilani.ac.in	Energy Solutions	Energy Solutions
66	Debashis Dutta Lecturer MMGP Govt.	6 November 1984	sontu2014@yahoo.co.in	Food Technology	Healthcare

	College				
67	Priyank Shah Research Fellow University of Warwick and Indian Institute of Technology	15 April 1992	Priyank.Shah@alumni.iitd.ac.in	Energy Solutions	Energy Solutions
68	Adersh Asok Scientist CSIR-National Institute for Interdisciplinary Science and Technology	19 January 1984	adersh.asok@niist.res.in	Energy Solutions	Energy Solutions
69	Ankita Mathur Post-doctoral researcher Indian Institute of Technology Mandi, Himachal Pradesh	23 September 1989	anki.mathur23@gmail.com	Energy solutions	Energy solutions
70	Disha Dinesha PhD Student/ Senior Research Scholar Indian Institute of Science (IISc), Bengaluru	7 July 1991	dishald11@gmail.com	Energy Systems	Energy solutions
71	Vijaykumar Jadhav Young Scientist/ Assistant Professor	23 March 1987	vijaypatil409@gmail.com	Energy Solutions	Energy Solutions

	SRTM University				
72	Neetu Jha UGC Assistant Professor Institute of Chemical Technology Mumbai	20 February 1982	nr.jha@ictmumbai.edu.in	Energy Solutions	Energy Solutions
73	Himanshi Babbar Research Scholar Chitkara University	9 August 1991	himanshi.babbar916@gmail.com	Healthcare	Healthcare
74	Naini Garg SRF DST Inspire Fellow AcSIR-Central Scientific Instruments Organization (CSIR-CSIO)	7 January 1992	nainigarg92@gmail.com	Environmental and social health determinants	Healthcare
75	Mandeep Singh Senior Research Fellow AcSIR(Academy of Scientific & Industrial Research	26 August 1993	mandeep2017npl@gmail.com	Physical sciences	Energy Solutions
76	Ankita Dey Statistician National Institute of Tuberculosis	14 October 1988	ankitadey14@gmail.com	Healthcare	Healthcare

	and Respiratory Diseases				
77	Gopal Rawat Assistant Professor NIT Hamirpur	15 March 1990	gopal.rawat@nith.ac.in	Energy Solutions	Energy Solutions
78	Naman Makkar Bachelors Student University of Edinburgh	28 March 2000	namansingh2803@gmail.com	Healthcare	Healthcare
79	Joyshree Karmakar Researcher CSIR-Indian Institute of Chemical Biology	16 November 1983	joyshreek66@gmail.com	Biological Science	Healthcare
80	Sandeep Panda Assistant Professor School of Biotechnology, Kalinga Institute of Industrial Technology Deemed to be University	22 December 1985	sandeeppanda2212@gmail.com	Health care	Health care
81	Sachin Kumar Assistant Professor Cluster Innovation Centre, University of	1 January 1988	officialid.sachin@gmail.com	Energy Solutions-Grid Technologies	Energy Solutions

	Delhi				
82	Sakthivadivel D Assistant Professor (Senior) Vellore Institute of Technology	10 April 1987	sakthivadivel.d@vit.ac.in	Energy Solutions	Energy Solutions
83	Saurabh Singh PhD Student Banaras Hindu University	21 April 1993	srb0484@gmail.com	Energy solutions	Energy solutions
84	Udit Satija Assistant Professor IIT Patna	27 April 1990	udit@iitp.ac.in	Healthcare	Healthcare
85	Kumar Ankit Doctoral Student Indian Institute of Science, Bangalore	14 October 1996	kumarankit@iisc.ac.in	Cyber Physical Systems	Cyber Physical Systems
86	Subodh Kumar Research Associate Centre for Precision Medicine & Pharmacy, Delhi Pharmaceutical Sciences & Research University	30 June 1982	subodh_bt2003@yahoo.co.in	Healthcare	Healthcare
87	Jayeeta Saha PhD student	7 January 1993	jayeetasaha93@gmail.com	Energy Solutions	Energy Solutions

	Indian Institute of Technology of Bombay				
88	KOROBI Konwar Research Scholar Tezpur University	1 October 1993	korobik@tezu.ernet.in	Healthcare	Healthcare
89	Pramod Jadhav Associate professor G H Raisoni Institute of engineering and technology, Pune	21 September 1983	pramod.jadhav@raisoni.net	Healthcare	Healthcare
90	Nikhil Karande Associate Professor G H Raisoni Institute of Engineering and Technology, Pune	18 June 1984	nikhil.karande@raisoni.net	Healthcare	Healthcare
91	Yamini Mittal PhD scholar (CSIR-GATE-SRF) CSIR-Institute of Minerals and Materials Technology	22 June 1994	yaminimittal94@gmail.com	Engineering Sciences	Healthcare
92	Arya Das PhD Scholar (CSIR-SRF)	5 March 1992	aryaimmt@gmail.com	Physical Science	Energy Solutions

	CSIR - Institute of Minerals & Materials Technology				
93	Divya Panneersel Vam Senior Research Fellow ICAR - National Dairy Research Institute,	2 October 1994	divya.bt1994@gmail.com	Healthcare	Healthcare
94	Aravind Kumar Rengan Assistant Professor IIT Hyderabad	9 August 1983	akr@iith.ac.in	Healthcare	Healthcare
95	Shree Sekar Senior Lecturer SRM Dental College, Ramapuram	27 November 1993	dentishree777@gmail.com	Healthcare	Healthcare
96	Amar Dhwaj Research Scholar Indian Institute of Information Technology, Allahabad	10 September 1994	a.d.khanna035@gmail.com	Healthcare	Healthcare
97	Shasank Swain ICMR-Post Doctoral Fellow ICMR-Regional Medical Research Centre	2 July 1990	swain.shasanksekhar86@gmail.com	Healthcare	Healthcare

98	Sadiya Waseem Senior Research Fellow CSIR-National Physical Laboratory,	14 August 1992	waseem.sadiya@gmail.com	Energy Solutions	Energy Solutions