



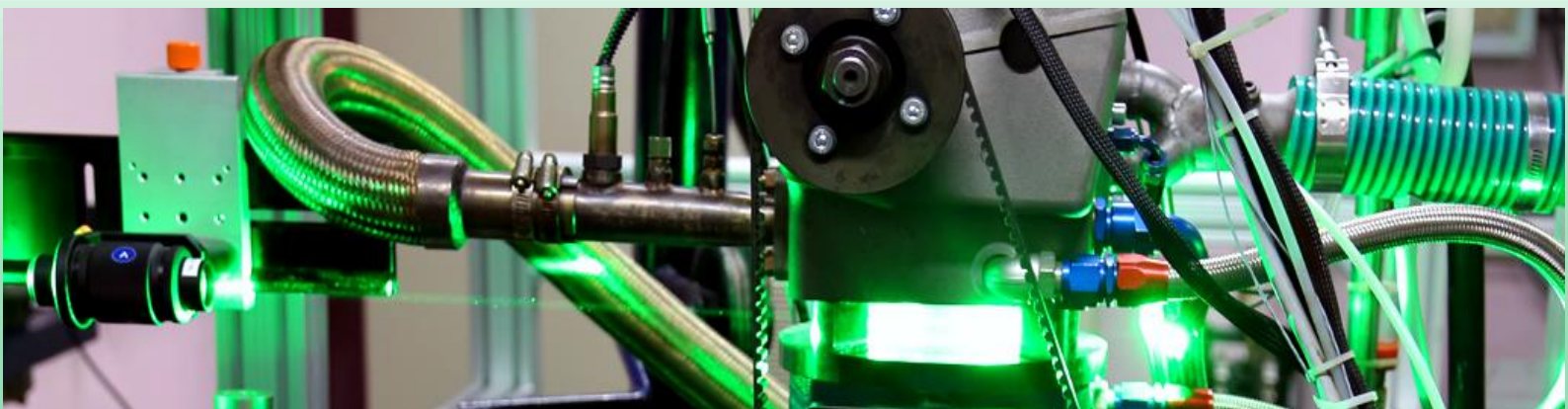
# Souvenir

**Sixth International Conference  
On  
Sustainable Energy and  
Environmental Challenges  
(VI-SEEC)**

**27<sup>th</sup> Dec 2021 – 29<sup>th</sup> Dec 2021**



**International Society for Energy,  
Environment and Sustainability**



**Ramada by Wyndham Lucknow**

# Contents

	<b>Page No.</b>
<b>1. About ISEES</b>	<b>3</b>
<b>2. ISEES Executive Committee</b>	<b>6</b>
<b>3. Committee for VI-SEEC</b>	<b>8</b>
<b>4. Conference Organisers</b>	<b>11</b>
<b>5. ISEES Fellows</b>	<b>16</b>
<b>6. ISEES Awards</b>	<b>26</b>
<b>7. Biography of Plenary Speakers</b>	<b>36</b>
<b>8. Biography of Moderators and Panellists</b>	<b>39</b>
<b>9. ISEES Membership Form</b>	<b>91</b>
<b>10. Schedule of VI-SEEC</b>	<b>93</b>



## **International Society for Energy, Environment and Sustainability**



### **About the Society**

The International Society for Energy, Environment, and Sustainability was founded at IIT Kanpur in January 2014 to spread knowledge in Energy, Environment, Sustainability, and Combustion. In this changing environmental scenario, the time has come where more emphasis has to be laid on renewable energy resources. Moreover, in this dynamic scenario of swelling competition and reducing profits, staying environmentally responsible can be highly challenging for any organization. More efficient systems have to be developed to meet the increasing energy demands and their environmental impact. People have to become more aware and concerned about the environmental challenges which the world is facing today to make it a better place for us and our future generations. The Society aims to spread knowledge in the areas mentioned above among people and make them more aware of the environmental challenges which the world is facing today. The Society is involved in various activities like conducting workshops, seminars, conferences, etc., in the domains mentioned above. The society also recognizes young scientists and engineers for their contributions in this field. It comprises experts from leading research institutions working in various domains related to energy

### **Aims and Objectives**

1. To organize Workshops/ Symposia/ Conferences/ Lectures/ Courses for the wide dissemination of knowledge to its members and society at large, in the areas related to energy, combustion, sustainability, and environment-related subjects.
2. To publish technical papers, monographs, books, and journals in the areas above.
3. Organizing events and activities for the benefits of the underprivileged in the society as per the capability of society members.

### **Journal of Energy and Environmental Sustainability (JEES)**

Journal of Energy and Environmental Sustainability is an official publication of the International Society for Energy, Environment, and Sustainability dedicated to all the conventional and renewable energy areas relevant to environmental sustainability. The journal will publish two issues in a year and offer a platform for high-quality research in the interdisciplinary areas of energy and environmental science and engineering.

## **ISEES Membership**

1. The Society shall have the grades of Student Member, Member, Fellow, and Honorary Fellow. In addition, institutions and organizations will be given Institutional or Corporate membership on payment of dues and satisfying other eligibility criteria as specified by the executive body from time to time.
2. Fellow of the Society will be the highest grade of membership.
3. A graduate in engineering, technology, science, social sciences, humanities, or having equivalent qualification as recognized by ISEES may apply for the Society's membership. In case of unrecognized qualifications, the ISEES executive committee (EC) will recognize the qualifications. The same shall be updated in the membership documentation from time to time. Award of membership shall be at the sole discretion of the EC.
4. A member may withdraw permanently from the membership of the society at any time by giving a notice in writing to the secretary. In such cases, neither partial nor full refund of the membership fee shall be done under any circumstances. There shall not be any exception to this provision.
5. ISEES EC can withdraw the membership of any student member/ member/ fellow in case of the individual's unethical, immoral, and criminal conduct. Any action not in alignment with the society's objectives, interests, and purpose may also lead to suspension of the membership. The permanent withdrawal can only be done after an opportunity to present their views to the EC has been given to the defaulting member. The decision of the ISEES EC in this regard shall be final and irrevocable in all such cases.

## **Privileges of Membership**

1. A member whose subscription is paid up to date shall be entitled:
2. To be notified of all relevant activities of the Society.
3. To vote at all Annual General Body Meetings (AGBM) and special meetings of the Society and voting (online/ ballot) on various issues, including elections and referendums.
4. Reduced registration fees in the events organized under the banner of the Society.
5. Receive a copy of the proceedings of the meetings (to the corporate members only).
6. To be included in a directory of experts along with the domain expertise to be published by the ISEES from time to time.
7. Corporate members will be able to send two delegates free/ subsidized rates to the events organized by the Society. They will also get a partial fee waiver in the advertisement published in the society newsletters/ literature/ ISEES website.

## **Awards and Recognition**

1. A member whose subscription is paid up to date shall be entitled:
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4. Reduced registration fees in the events organized under the banner of the Society.
5. Receive a copy of the proceedings of the meetings (to the corporate members only).
6. To be included in a directory of experts along with the domain expertise to be published by the ISEES from time to time.
7. Corporate members will be able to send two delegates free/ subsidized rates to the events organized by the Society. They will also get a partial fee waiver in the advertisement published in the society newsletters/ literature/ ISEES website.

## Membership Fees

	Type of membership	Annual Membership Fee	Five-Years Membership Fee <small>NEW</small>	Life Membership Fee (10 Years)
<b>India/ SAARC Countries</b>	Student Members	Rs.1000+18% GST (Rs. 1180)	--	--
	Member/ Fellow	Rs.2000+18% GST (Rs. 2360)	Rs.5000+ 18% GST (Rs. 5900)	Rs.10000+ 18% GST (Rs. 11800)
	Corporate	Rs.10000+18% GST (Rs. 11800)	--	Rs.50000+18% GST (Rs.59000)
	Honorary Fellow	0	0	0
<b>USA, Europe and Developed Countries</b>	Student Members	50 US\$	--	--
	Member/ Fellow	100 US\$	250 US\$	500 US\$
	Corporate	500 US\$	--	2500 US\$
	Honorary Fellow	0	0	0
	The ratio of A and B will depend on relationship between INR and US\$ after taking into account the PPP (between India and USA).			

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Dr Sunita Varjani



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# ISEES Executive Committee (2019-2020)

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**Prof Ashok Pandey**

Distinguished Scientist

CSIR-Indian Institute of Toxicology Research,

Lucknow-226001, India

E-mail [pandey@ciab.res.in](mailto:pandey@ciab.res.in); ashokpandey56@yahoo.co.in

**Prof Ashok Pandey** is currently a Distinguished Scientist at CSIR-Indian Institute for Toxicology Research, Lucknow, India, and Honorary Executive Director at the Centre for Energy and Environmental Sustainability- India. He has been Visiting Professor/Scientist and UNESCO Professor in many countries, including France, Brazil, the UK, Switzerland, Malaysia, Thailand, etc. Formerly, he was an Eminent Scientist at the Center of Innovative and Applied Bioprocessing, Mohali, and Chief Scientist & Head of Biotechnology Division at CSIR's National Institute for Interdisciplinary Science and Technology, Trivandrum. Professor Pandey has ~ 1200 publications/communications, including 16 patents, 54 books, 130 book chapters, 465 original and review papers, etc., with an h index of 84 and more than 29,000 citations (Goggle scholar).

Prof Pandey is the recipient of many national and international awards and fellowships, which include the Life-Time Achievement Award from the International Society for Energy, Environment and Sustainability (2017); Fellow of Royal Society of Biology, UK (2016); Academician of European Academy of Sciences and Arts, Germany (2016); Fellow of International Society for Energy, Environment and Sustainability (2014); Fellow of National Academy of Science, India (2012); Fellow of Association of Microbiologists of India (2010); Fellow of International Organization of Biotechnology and Bioengineering (2008); Fellow of the Biotech Research Society, India (2005); Honorary Doctorate from Universite Blaise Pascal, France (2007); Thomson Scientific India Citation Laureate Award, USA (2008); Lupin Visiting Fellowship, Best Scientific Work Achievement award, Govt of Cuba; UNESCO Professor; Raman Research Fellowship Award, CSIR; GBF, Germany and CNRS, France Fellowship; Young Scientist Award, etc.

Prof Pandey was Chairman of the International Society of Food, Agriculture, and Environment, Finland (Food & Health) during 2003-2004. He is Founder President of the Biotech Research Society, India; International Coordinator of International Forum on Industrial Bioprocesses, France; Chairman of the International Society for Energy, Environment & Sustainability; and Vice-President of All India Biotech Association.

Prof Pandey is Editor-in-chief of Bioresource Technology, Honorary Executive Advisors of Journal of Water Sustainability and Journal of Energy and Environmental Sustainability, Subject editor of Proceedings of National Academy of Sciences (India), and editorial board member of several international and Indian journals. He is editor-in-chief of a book series on Current Developments in Biotechnology and Bioengineering, comprising twelve volumes published by Elsevier, and another series on Biomass, Biofuels and Biochemicals, including six volumes.

**Prof Avinash Kumar Agarwal**

Professor

Department of Mechanical Engineering

Indian Institute of Technology Kanpur

Kanpur 208016

Email: [akag@iitk.ac.in](mailto:akag@iitk.ac.in)



Prof. Avinash Kumar Agarwal obtained his B.E. (Mech Engg., 1994) from Malviya Regional Engineering College, Jaipur and M.Tech. (Energy, 1996) and PhD (Energy, 1999) from Indian Institute of Technology Delhi. After his Post-Doctoral Fellowship (1999 – 2001) stint at the Engine Research Center, University of Wisconsin, Madison, USA, he returned to India in 2001 and joined the Department of Mechanical Engineering, Indian Institute of Technology Kanpur.

At IIT Kanpur, Prof. Agarwal worked in the areas of IC engines, combustion, conventional fuels, alternative fuels, methanol fuelled engine development, hydrogen, fuel sprays, lubricating oil tribology, optical diagnostics, laser ignition, HCCI, particulate and emission control, and large bore engines. Currently, Prof. Agarwal is involved in developing Methanol and DME fuelled vehicles for the automotive sector. Prof. Agarwal has published more than 295 peer-reviewed international journal and conference papers, 55 edited books, 75 books chapters and has 12700+ Scopus and 20000+ Google Scholar citations. He is Editor of “FUEL”, Editor-in-Chief of Journal of Energy and Environmental Sustainability, and editorial board member of IMechE International Journal of Engine Research. He has edited “Handbook of Combustion” (5 Volumes; 3168 pages), published by Wiley VCH, Germany, the most updated combustion compilation in the world.

For his outstanding contributions, Prof. Agarwal is conferred upon Sir J C Bose National Fellowship (2019) by SERB, Clarivate Analytics India Citation Award-2017 in Engineering and Technology, Prestigious Shanti Swarup Bhatnagar Prize (2016) in Engineering Sciences, Rajib Goyal Prize in Physical Sciences (2015); NASI-Reliance Industries Platinum Jubilee Award (2012); INAE Silver Jubilee Young Engineer Award (2012); Dr C. V. Raman Young Teachers Award (2011); SAE International’s Ralph R. Teetor Educational Award (2008); INSA Young Scientist Award (2007); UICT Young Scientist Award (2007); INAE Young Engineer Award (2005); Devendra Shukla Research Fellowship (2009-12), Poonam and Prabhu Goyal Endowed Chair Professorship (2013-16), SBI Endowed Chair Professorship (2018-21) at IIT Kanpur; AICTE Career Award for Young Teachers (2004); DST Young Scientist Award (2002); and DST BOYSCAST Fellowship (2002).

Prof. Agarwal is a highly cited researcher-2018 and is among the top ten HCR from India, among 4000 HCR researchers globally in 22 fields of enquiry. He is an elected Fellow of Society of Automotive Engineers International, USA (SAE; 2012), American Society of Mechanical Engineers (ASME; 2013), Indian National Academy of Engineering (INAE; 2015), International Society for Energy, Environment and Sustainability (ISEES; 2016), Royal Society of Chemistry (RSC; 2018), National Academy of Science Allahabad (NASI; 2018) and American Association for Advancement in Science (AAAS; 2020). At IIT Kanpur, Prof. Agarwal has established a state-of-the-art “Engine Research Laboratory” ([www.iitk.ac.in/erl](http://www.iitk.ac.in/erl)), and he was also the founder-director of IIT Kanpur’s Science and Technology Research Park (Technopark@iitk; <http://www.technoparkiitk.com>).



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**Ms. Utkarsha Sonawane**  
IIT Kanpur

# ISEES FELLOWS

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Lucknow, India



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Materials Science and Engineering Department  
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IIT Kanpur, Kanpur



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Center of Innovative and Applied Bioprocessing  
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Microbial Process and Technology Division,  
CSIR-NIIST Trivandrum, Kerala



**Prof Gnansounou Edgard**  
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Modelling and Planning of Energy System  
Swiss Federal Institute of Technology,  
Lausanne (EPFL).



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Department of Chemical Engineering  
Indian Institute of Technology, Guwahati



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Veltech Deemed University, Chennai



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Director  
National Institute of Technology,  
Uttarakhand, India



**Prof Shantanu Bhattacharya**  
Department of Mechanical Engineering  
Indian Institute of Technology Kanpur  
Kanpur, 208016, UP, India

# ISEES FELLOWS (2018)



**Prof Gautam Kalghatgi**

Principal Professional, Saudi Aramco  
PO Box 9290  
Dhahran, Saudi Arabia 31311



**Dr Ajay Mathur**

Director-General  
TERI (The Energy and Resources Institute)  
6C Darbari Seth Block IHC Complex, Lodhi Road  
New Delhi 110003



**Prof V Ganeshan**

Professor  
Department of Mechanical Engineering  
Indian Institute of Technology Madras



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Head of Chemical Process Engg and Energy Technology  
Institute of Chemical, Environmental & Biological  
Engineering, TU-Wien,  
Getreidemarkt 9/166  
1060 Vienna, Austria



**Dr Nitin Labhasetwar**

Sr. Principal Scientist & Head,  
Energy & Resource Management Division,  
CSIR-National Environmental Engineering Research  
Institute, Nehru Marg, Nagpur-440020, India



**Prof Achintya Mukhopadhyay**

Professor  
Mechanical Engineering Department  
Jadavpur University, Kolkata, India

# ISEES FELLOWS (2017)



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Member, NITI Aayog,  
DRDO Guest House, Development Enclave,  
Sankar Vihar Delhi Cantt., New Delhi-110010



**Prof Probir Kumar Bose**

Campus Director, NSHM Knowledge Campus, GOI  
Arrah, Shivtala, Via Muchipara, Durgapur - 713212



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Washington University in St. Louis, USA



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Head, Centre for Transportation Systems (CTRANS)  
Indian Institute of Technology (I.I.T.) - Roorkee



**Prof Swarnendu Sen**

Professor, Department of Mechanical  
Engineering  
Department of Mechanical Engineering,  
Jadavpur University, Kolkata - 700 032



**Dr Thallada Bhaskar**

Principal Scientist,  
Thermocatalytic Processes Area, Bio-Fuels Division,  
CSIR-Indian Institute of Petroleum, Mohkampur,  
Dehradun-248005, Uttarakhand, India



**Dr Anirudh Gautam**

Executive Director  
Special Railway Establishment for Strategic  
Technology and Holistic Advancement (SHRESHTA)  
RDSO, Lucknow

# ISEES FELLOWS (2016)



**Prof Avinash Kumar Agarwal**  
Department of Mechanical Engineering  
Indian Institute of Technology Kanpur  
Kanpur, 208016, UP, India



**Dr S. Venkata Mohan**  
Principal Scientist  
Bioengineering and Environmental Sciences  
Lab, EEFF Department,  
CSIR-Indian Institute of Chemical  
Technology, Hyderabad – 500 007, India



**Prof Ernst Wintner**  
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Vienna University of Technology (TU Vienna,  
Photonics Institute),  
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**Prof Ryo Amano**  
Professor  
Department of Mechanical Engineering  
University of Wisconsin-Milwaukee  
Milwaukee, WI 53201

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Hanyang University Seoul, Korea



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Banaras Hindu University  
Varanasi



**Dr Gabriel D. Roy**  
CPnE Consultants,  
Fairfax, VA 22030, USA



## ISEES FELLOWS (2014)



**Prof Ashok Pandey**

Distinguished Scientist  
CSIR-Indian Institute of Toxicology Research,  
Lucknow-226001, India



**Prof S. R. Gollahalli**

School of Aerospace and Mechanical Engg.  
University of Oklahoma  
Norman, OK 73019



**Dr R. K. Malhotra**

Director General  
Federation of Indian Petroleum Industry  
(FIPI)  
3rd Floor, PHD House, 4/2,  
Siri Institutional Area,  
August Kranti Marg,  
New Delhi - 110 016



# **ISEES AWARDS**

# ISEES Young Scientist Awardees (2022)



## **Dr Pritam Kumar Dikshit**

Dr Pritam Kumar Dikshit is presently working as Assistant Professor at the Department of Biotechnology, KL University, Andhra Pradesh. His research interest focuses on Sonochemistry, Biopolymer, Biological Wastewater Treatment, and Biochemical and Fermentation Technology. He has published 22 journal papers, 4 book chapters, and 10 refereed conference papers. He has received 'Brain Korea 21 Plus Fellowship' at Chungbuk National University, Republic of Korea. He was conferred the 'Innovation in Polymeric Material' award from the Ministry of Chemicals & Fertilizers, Govt. of India.



## **Dr Paramvir Singh**

Dr Paramvir Singh is a post-doctoral fellow at the Department of Aerospace Engineering, Indian Institute of Technology Bombay, Maharashtra. His research interest includes Fuels and Combustion, Low-temperature combustion, and Internal combustion engines. He was conferred the Shastri Research Student Fellowship award from Shastri Indo Canadian Institute. He has authored 30 refereed journal papers, 11 refereed conference papers, and 5 book chapters.



## **Dr Achu Chandran**

Dr Achu Chandran is working as a scientist at CSIR- NIIST, Thiruvananthapuram. His research areas are Green-Mechanical Energy Harvesters & Sensors and Printed Electronic Materials & Wearable Devices. He was conferred CSIR Young Scientist Award 2021 from CSIR, India, and Early Career Research Award 2019 from DST-SERB, Govt. of India. He has authored 26 refereed journal papers, 06 refereed conference papers, and 01 book chapters.



## **Dr Hemant Bherwani**

Dr Hemant Bherwani is working as a scientist at CSIR-NEERI Nagpur, Maharashtra. His research areas are Environment and Energy Systems Engineering, Environmental Systems Modelling, and Environmental Economics. He is a recipient of Outstanding Junior Scientist of CSIR-NEERI at 62<sup>nd</sup> foundation day awards. He is recognized as an Expert Member for Environmental Damages Cost Assessment from CPCB. He has authored 28 refereed journal papers, 12 refereed conference papers, and 05 book chapters.

## ISEES Best PhD Thesis Awardees (2022)



**Amulya Kotamraju**

**Thesis Title:** Sustainable Production of Succinic Acid and Polyhydroxyalkanoates through Waste Valorization and CO<sub>2</sub> Sequestration in a Biorefinery Framework

**Institute:** Academy of Scientific & Innovative Research (AcSIR), Ghaziabad, Uttar Pradesh-201002



**Anupma Thakur**

**Thesis Title:** Development of Efficient Photoelectrodes for Solar Driven Hydrogen Production by Water splitting

**Institute:** Academy of Scientific & Innovative Research (AcSIR), Ghaziabad, Uttar Pradesh-201002



**Vishnu H**

**Thesis Title:** Experimental and Numerical Study of Inverse Jet Flame with Circumferential Arranged Port Burner

**Institute:** Indian Institute of Technology Kanpur



**Vivek Kumar Gaur**

**Thesis Title:** Genetic and Functional Characterization of Microbial Biosurfactant for Human and Environmental Health Application

**Institute:** Amity Institute of Biotechnology, Lucknow

# ISEES Best Master's Thesis Awardees (2022)



**Dhananjay Kumar**

**Thesis Title:** Simulation of High-Pressure Co-Axial Injection System for Methanol Adaptation in A Locomotive Engine

**Institute:** Indian Institute of Technology Kanpur, India



**Shruti Tandon**

**Thesis Title:** Investigating the Intermittency Route of Chaos to Order Transition in Laminar and Turbulent Thermoacoustic Systems

**Institute:** Indian Institute of Technology Madras, India



**Harsimran Singh**

**Thesis Title:** Combustion Control in Gasoline Compression Ignition Engine

**Institute:** Indian Institute of Technology Kanpur, India

## ISEES Young Scientist Awardees (2021)



### **Dr Arup Jyoti Borah**

Dr Arup Jyoti Borah is a former assistant professor at NIT Arunachal Pradesh. He has completed his Ph.D from IIT Guwahati. His areas of interest include Waste to energy, bio-polymer, invasive plants, circular bio-economy, agriculture, solid waste, carbon to climate studies, GIS. He has worked in areas like (1) Comparative insight of ultrasound enhanced thermo-chemical and bio-chemical routes for the synthesis of advanced biofuel and platform chemicals, (2) Biomaterial-based eco-innovations and products (3) Correlate the plant physiological studies with genome content (4) Biodegradation, enzymatic desulphurization.



### **Dr Nithin K.S.**

Dr Nithin K. S is an assistant professor in the chemistry department at the National Institute of Engineering, Mysore. His areas of research include advanced materials of techno-commercial significance, which embrace the search for nanostructured materials for effluent treatment, polymer-based composite materials for solar energy conversion and storage, mechanically flexible spectral manipulators for UV protection and sensing, electro-active smart materials for pressure sensing, green polymer composites for fruit and vegetable packaging, He has more than 110 publications to my credit, which cover 50 plus research articles in reputed International journals. He has filed 2 Indian and 1 US patent, authored 09 book chapters, 2 books, 4 editorials, and 1 monograph.

## ISEES Best PhD Thesis Awardees (2021)



**Aravind B.**

**Thesis Title:** Thermoelectric Power Generation using Microcombustor

**Institute:** Indian Institute of Technology Bombay, India



**Pooja Sharma**

**Thesis Title:** Bacterial Assisted Phytoremediation of Organic Pollutants for Detoxification of Pulp and Paper Mill Effluent after Secondary Treatment

**Institute:** Babasaheb Bhimrao Ambedkar University, India



**Ranjna Sirohi**

**Thesis Title:** Process optimization, characterization and modelling of microbially synthesized poly-3-hydroxybutyrate (PHB) using damaged wheat grains

**Institute:** G.B. Pant University of Agriculture and Technology, India



**Santanu Basak**

**Thesis Title:** Studies on sustainable approach for developing fire retardant textiles using plant-based bio-macromolecules

**Institute:** Indian Institute of Technology Delhi, India



# **LIST OF PANELISTS OF VI-SEEC**

A. Ramesh	Indian Institute of Technology Chennai
Aditya Saurabh	Indian Institute of Technology Kanpur
Ajit K Dubey	Indian Institute of Technology Roorkee
Akhilendra Bhushan Gupta	Malaviya National Institute of Technology Rajasthan
Alok Sinha	Indian Institute of Technology (ISM) Dhanbad
Altaf Husain Khan	CSIR-Indian Institute of Toxicology Research, Lucknow
Amir Abdul Manan	Saudi Aramco, Dhahran
Amir Bin Aziz	Universiti Malaysia Pahang, Malaysia
Amitava Datta	Jadavpur University, West Bengal
Amy Tan	The University of Hong Kong (HKU)
Anirudha Ambekar	Indian Institute of Technology Goa
Antonio Garcia	Universitat Politècnica de Valencia
Archana Tiwari	Amity Institute of Biotechnology, Noida
Arvind G. Rao	Delft University, Netherland
Ashokkumar Veeramuthu	National Cheng Kung University, Taiwan
Atul Dhar	Indian Institute of Technology Mandi
Balkrishna Mehta	Indian Institute of Technology Bhilai
Baskar Gurunathan	St. Joseph's College of Engineering, Chennai
Bhupendra Khandelwal	The University of Alabama
Bin Gao	University of Florida
Burak Zincir	Istanbul Technical University
Choongsik Bae	Korea Advanced Institute of Science and Technology, South Korea
Christopher Arnusch	Ben-Gurion University of the Negev, Israel
Dhananjay Kumar Srivastava	Indian Institute of Technology Kharagpur
Dibakar Rakshit	Indian Institute of Technology Delhi
Dilip Sharma	Malaviya National Institute of Technology Jaipur
Eldon R. Rene	IHE Delft Institute for Water Education
Fang Wang	Chinese Academy of Sciences
Franz Winter	Vienna University of Technology, Austria
Gabriele Di Blasio	STEMS of the National Research Council, Italy
Gautam Kalghatgi	Shanghai Jiao Tong University
Héctor A. Ruiz	Autonomous University of Coahuila, Mexico
Himanshu Tyagi	Indian Institute of Technology Ropar
Indu Shekhar Thakur	Amity University, Haryana
Lam Su Shiung	Universiti Malaysia Terengganu

Jacek Hunicz	Lublin University of Technology, Poland
Jagan Gorle	Cargotec Corporation, Finland
K. S. Reddy	Indian Institute of Technology Madras
Kamal Kishore Pant	Indian Institute of Technology Delhi
Kashyap Kumar Dubey	Jawaharlal Nehru University, New Delhi
Kirti Bhushan Mishra	Indian Institute of Technology Roorkee
Kumar Patchigolla	Cranfield University, United Kingdom
Leonid Tartakovsky	Technion – Israel Institute of Technology
Long D. Nghiem	University of Technology Sydney, Australia
Luciana Porto De Souza Vandenberghe	Federal University of Paraná, Brazil
Manoj Kumar Tiwari	Indian Institute of Technology Kharagpur
Mayank Mittal	Indian Institute of Technology Madras
Meisam Tabatabaei	Universiti Malaysia Terengganu, Malaysia
Mritunjay Kumar Shukla	CSIR-Indian Institute of Petroleum Dehradun, Uttarakhand
Nam Il Kim	KAIST, South Korea
Nanthi Bolan	University of Western Australia
Nimish Singh	The Energy and Resources Institute, India
Nitin Labhsetwar	CSIR-NEERI, India
Onkar Singh	Madan Mohan Malviya University of Technology
P. A. Lakshminarayanan	Simpson Engines, India
Padma S Rao	CSIR NEERI, Nagpur
Palanivel Sathishkumar	South China Normal University, China
Pankaj Sharadchandra Kolhe	Indian Institute of Technology Hyderabad
Parmjit S. Panesar	Sant Longowal Inst. of Engineering & Technology, Longowal
Pau-Loke Show	University of Nottingham Malaysia
Piyali Das	The Energy and Resources Institute (TERI) India
Po-Heng Lee	Imperial College London, London
Pratyosh Shukla	Institute of Science, Banaras Hindu University
Prashant Sonar	Queensland University of Technology
Pravesh Chandra Shukla	Indian Institute of Technology Bhilai
Preeti Chaturvedi	CSIR-Indian Institute of Toxicology Research, Lucknow
R Santhosh	Indian Institute of Technology (BHU) Varanasi
R. Parthasarathi	CSIR-Indian Institute of Toxicology Research
Raja Banerjee	Indian Institute of Technology Hyderabad
Rakesh Kumar	CSIR- NEERI, Nagpur

Rakesh Maurya	Indian Institute of Technology Ropar
Ravindran Balasubramani	Kyonggi University, South Korea
Richa Kothari	Central University of Jammu
Roberto Parra Saldivar	Tecnologico de Monterrey, Mexico
Roni Kasher	Ben-Gurion University of the Negev, Israel
S. Saravanamurugan	Innovative and Applied Bioprocessing, Mohali
S. V. Srinivasan	CSIR - Central Leather Research Institute
S. Venkata Mohan	CSIR-Indian Institute of Chemical Technology
Samir Khanal	University of Hawaii-Manoa, USA
Sang-Hyoun Kim	Yonsei University, South Korea
Santanu De	Indian Institute of Technology Kanpur
Saori Kashima	Hiroshima University, Israel
Saptarshi Basu	Indian Institute of Science Bangalore
Shaun Chan	The University of New South Wales
Siming You	University of Glasgow
Sivasankaran Harish	The University of Tokyo
Sudarshan Kumar	Indian Institute of Technology Bombay
Sumit Sharma	United Nation's Environment Programme, Kenya
Sunita Varjani	Gujarat Pollution Control Board
Suresh Kumar Dubey	Banaras Hindu University, India
Swarnendu Sen	Jadavpur University, West Bengal
Swatantra P. Singh	Indian Institute of Technology Bombay
Venkata Mohan	CSIR-Indian Institute of Chemical Technology
Vijayanand S. Moholkar	Indian Institute of Technology Guwahati
Vinod Kumar Garg	Central University of Punjab
Yogesh Chandra Sharma	Indian Institute of Technology (BHU) Varanasi
Young-Kwon Park	University of Seoul, South Korea

# **BIOGRAPHY OF PLENARY SPEAKERS**

## **Dr Vijay Kumar Saraswat**

Member, NITI Aayog,  
Former Secretary Defence R&D,  
DRDO Guest House, Development Enclave,  
Sankar Vihar Delhi Cantt., New Delhi-110010



Dr Vijay Kumar Saraswat retired as Secretary, DRDO, after more than four decades of Government service. He is ME from IISc Bangalore, and PhD from Osmania University and a gifted scientist with vast experience in defense research in both basic and applied sciences. During his illustrious career, Dr Saraswat has been credited with indigenous development of (i) Missiles namely PRITHVI, DHANUSH, PRAHAAR, and AGNI-5; (ii) Development of two-tiered Ballistic Missiles Defence (BMD) systems (iii) Initial Operational Clearance of Light Combat Aircraft TEJAS; and Nuclear Submarine INS Arihant.

As Secretary DRDO, Dr Saraswat played a pivotal role in (i) establishment of the command, control, communication, storage, transportation, and deployment infrastructure for strategic nuclear assets to support the nuclear doctrine; (ii) Flight Evaluation of long-range sub-sonic cruise missile (iii) Long Range Radars for tracking incoming (enemy) Ballistic missiles, Command control, and communication network, Command Centres with a decision support system for defense of National Capital Region against enemies' ballistic missile threat, (iv) Established Cyber Security Research and Development Centre for developing offensive and defensive technologies for cyber security.

As Homi Bhabha Chair Professor and Consultant to IOCL R&D, evolved a road map for developing Alternate Energy Systems viz. clean coal technologies, High Efficiency Concentrated Solar Power Systems, Bio-energy, and Hydrogen based economy. Presently he is Chairman of the Research Advisory Council of IOCL R&D. As Chairman NTPC R&D Advisory Council similar alternate energy technology development plan has been prepared with a focus on clean coal technologies viz. Integrated Gasification and combined cycle system, Advanced ultra-super critical Thermal Power Plant to work on efficiencies better than 40% and highly reduced greenhouse emissions. Initiated a program for the development of Silicon-Photonics technology by setting up Photonics Valley Corporation at Telangana. Govt. of Telangana initiative in collaboration with Photonics Inc USA. This will be a game-changer for the next generation of networks like 5G and super computers.

As Chairman of Committee for development of Indian Microprocessor led a team to evolve the configuration of the M-Processor for IoT, Smart Cities and other ICT applications laid out the strategy for development with DieTy, CDAC, IIT(M), IIT(B), and SCL Chandigarh. Two devices have already been developed in IIT(B) and IIT(M). As Member, NITI Aayog initiated a program to establish a "Methanol Economy" for transportation, energy generation, and production of chemicals, fertilizers, etc. Production agencies, academic institutions, and Petro-refineries have been brought on a common platform to leap frog in "Methanol Economy". M-15 gasoline blend, methanol cooks stove, and methanol-fueled propulsion for Inland Waterways and Methanol-fueled gensets are being introduced as part of the "Methanol Economy" initiative in the country. R&D activity in gasification of High Ash content Indian coal has been initiated at Academia & Industry. Configuration and development strategies have evolved, and the program has been launched as a multi-organization mission. He is a recipient of many awards, and most notable among them are Padma Shri (1998), Padma Bhushan (2013). He has been conferred Honorary Doctorate by more than 25 Universities, the latest among them being Jamia Humdard (2018).

**Dr Ashutosh Sharma**

Professor, Department of Chemical Engineering  
IIT Kanpur  
Former DST Secretary



Dr Ashutosh Sharma has been a Secretary to the Government of India since January 2015, heading the Department of Science and Technology (DST), where he helped initiate several new programs related to infrastructure and human capacity building; innovation and startups; R&D in advanced manufacturing, waste processing, clean energy and cyber-physical systems; industry-academia cooperation; science communication; women scientists; and major international collaborations in the areas of priority for the nation. He received his PhD from the State University of New York at Buffalo (SUNYAB; 1988), his MS from the Pennsylvania State University (1984), and B.Tech. from IIT Kanpur (1982). He has been a professor (1997-), an Institute Chair Professor (2007-) and the Head (2003-05) of Chemical Engineering, and the founding Coordinator of Nanoscience Center and Advanced Imaging Center at the Indian Institute of Technology at Kanpur.

Ashutosh's research contributions are highly interdisciplinary, spanning a wide spectrum in nanotechnology; thin polymer films; nanocomposites and devices in energy, health and environment; functional interfaces; micro/nano-mechanics of soft matter; nano-patterning and nanofabrication; colloid and interfacial engineering; biomaterials & biosurfaces; wetting and adhesion. He has published over 350 peer-reviewed papers, filed over 15 patents, given over 150 invited or key note conference presentations, and mentored a successful nanotechnology startup.

Dr Ashutosh is a recipient of numerous honors and awards, including the inaugural Infosys Prize in Engineering and Computer Science, TWAS Science Prize of the World Academy of Sciences, Bessel Research Award of the Humboldt Foundation, J. C. Bose Fellowship, S. S. Bhatnagar Prize, Homi J. Bhabha Award of UGC, The Syed Husain Zaheer Medal and the Meghnad Saha Medal of INSA, Distinguished Alumni Awards of IIT Kanpur and SUNY Buffalo, Firodia Award, the Life-time Achievement Award of the Indian Science Congress and several Doctor of Science honoris causa, including from SUNY Buffalo, and Jadavpur University.

Dr Ashutosh is an elected Fellow of The Indian National Science Academy, The Indian Academy of Sciences, The National Academy of Sciences, India and Indian National Academy of Engineering, The World Academy of Sciences (TWAS), and the Asia-Pacific Academy of Materials. He has also served on the Councils of the first two. He has been an associate editor of ACS Applied Materials and Interfaces, Proceedings of Indian National Science Academy and ASME Journal of Micro- and Nano-Manufacturing and has been on the editorial boards of several journals: Carbon; ACS Industrial and Engineering Chemistry Research; Current Science; Nanomaterials and Energy; Chemical Engineering Science; Journal of Colloid and Interface Science; Canadian Journal of Chemical Engineering and Indian Chemical Engineer.

# **BIOGRAPHY OF MODERATORS & PANELISTS**



## Session 1A: Fuels for Sustainable Transport

Moderator 1:

**Prof Dilip Sharma**

Professor (HAG)

Department of Mechanical Engineering

Malaviya National Institute of Technology Jaipur

Jaipur 302017

Email: [dsharma.mech@mnit.ac.in](mailto:dsharma.mech@mnit.ac.in)



Prof Dilip Sharma is a Mechanical Engineering Graduate (1988) from MNIT Jaipur. After working with CIMMCO Ltd, Bharatpur, for a short while, he joined Roorkee University for Post-Graduation in Thermal Engineering and was awarded with University Medal. Dr Sharma joined MNIT Jaipur in 1992 and is presently working as Professor (HAG) in Mechanical Engineering Department, MNIT Jaipur. He has supervised 14 PhD scholars in the field of Alternate Sources of energy. He published more than 150 research papers, 15 books, 07 book chapters and filed 07 patents (4 Awarded). Dr Sharma has completed 07 major R&D projects and 41 consultancy projects. Dr Sharma has taken various assignments at MNIT, Jaipur, such as Dean (SW), Head (Mech. Eng. Dept.), Coordinator Institute Security, Coordinator Transportation, Coordinator Central Workshop, Vice President Games and Sports, In-charge of Institute Guest house, etc.

Moderator 2:

**Prof Atul Dhar**

Associate Professor

Department of Mechanical Engineering

Indian Institute of Technology Mandi

Himachal Pradesh 175005

Email: [add@iitmandi.ac.in](mailto:add@iitmandi.ac.in)



Dr Atul Dhar is currently working as Associate Professor at Indian Institute of Technology Mandi. He completed his M.Tech degree and PhD from the Department of Mechanical Engineering, Indian Institute of Technology Kanpur. He also worked at Mahindra & Mahindra, Automotive Sector in 2006 to get exposure to industrial working environments. He was awarded the Erasmus Mundus fellowship of the European Union for pursuing postdoctoral research at Ecole Centrale de Nantes, France in 2013. He was awarded the young scientist award from the International Society for Energy, Environment and Sustainability in 2015. His areas of interest include reciprocating internal combustion engines, emission control technologies, alternative fuels, and lubricating oil tribology. Till now, he has published more than fifty international peer-reviewed papers.

Panelist 1:

**Prof Leonid Tartakovsky**

Associate Professor

Faculty of Mechanical Engineering

Technion – Israel Institute of Technology

Haifa 3200003, Israel

Email: tartak@me.technion.ac.il



Dr Leonid Tartakovsky is a Director of the Technion Internal Combustion Engines Laboratory at the Department of Mechanical Engineering. His research interests are focused on energy conversion in propulsion systems, advanced thermodynamic cycles, alternative fuels, thermochemical recuperation, combustion, and emissions control. Dr Tartakovsky serves as an Associate Editor of the SAE International Journal of Engines and the Editorial Board member of several journals. Dr Tartakovsky is a recipient of the SAE Forest R. McFarland Award, was elected SAE Fellow in 2016, and SAE Top Contributor in 2019. He is a Founding Chairman of three international conferences, served on the Organizing Committee of multiple conferences, and has ~100 publications in journals and conference proceedings.

Panelist 2:

**Dr Amir Abdul Manan**

Science Specialist

Saudi Aramco

Dhahran, 31311

Kingdom of Saudi Arabia

Email: amir.abdulmanan@aramco.com



Dr Amir Abdul-Manan is a sustainable transport specialist with 15 years of professional experience conducting corporate strategic research in the areas of energy, technology, and policy for the global energy and mobility sector. He is currently a science specialist in the Strategic Transport Analysis Team (STAT) at Saudi Aramco's Research & Development Center in Saudi Arabia. He has developed core expertise in lifecycle thinking, technology impact assessment, and policy analysis within the climate-energy space, particularly for the transport sector.

Panelist 3:

**Prof Franz Winter**

Professor

Institute of Chemical, Environmental and Bioscience Engg.

Vienna University of Technology, Austria

Email: [franz.winter@tuwien.ac.at](mailto:franz.winter@tuwien.ac.at)



Prof Franz Winter is working at the Institute of Chemical, Environmental, and Bioscience Engineering, TU Wien, Vienna, Austria, and the Head of the Research Division Chemical Process Engineering and Energy Technology. His research focuses on chemistry and energy conversion processes at high temperatures and pressures and CO<sub>2</sub> capture and utilization. Recent projects are on CO<sub>2</sub> conversion to methanol and Fischer - Tropsch fuels as well as its utilization within the CO<sub>2</sub> refinery.

Panelist 4:

**Prof Kirti Bhushan Mishra**

Assistant Professor

Department of Mechanical and Industrial Engineering

Indian Institute of Technology Roorkee

Roorkee-247667, Uttarakhand

Email: [kirti.mishra@me.iitr.ac.in](mailto:kirti.mishra@me.iitr.ac.in)



Dr Mishra has more than a decade of research experience in the area of combustion, fuels, and fire safety at world-renowned research labs in Germany. He has extensive hands-on experience in measurements and modeling various real-life combustion-related problems. Apart from 21 international patents, 29 journal papers, and 48 conference papers to his credit, he also carries substantial experience in managing national and international projects. He is the founder of the TRAG (Technological Risk Research and Analysis Group) lab at IIT Roorkee, where small-scale combustion tests on various alternative fuels can be performed for initial screening. His areas of interest are alternative fuels, combustion, emission control, fire, explosion, and CFD modeling.

Panelist 5:

**Prof Yogesh Chandra Sharma**

Professor

Department of Chemistry

Indian Institute of Technology (BHU) Varanasi

Varanasi 221005, India

Email: ysharma.apc@iitbhu.ac.in



Prof Sharma finished his PhD from the Department of Applied Chemistry, Institute of Technology, Banaras Hindu University, Varanasi in 1991. Currently, Prof Sharma is working as a Full Professor in the Department of Chemistry, Indian Institute of Technology (BHU). Research interests of Prof Sharma include Renewable Energy and Bio-fuels, Development and characterization of heterogeneous catalysts, Synthesis of nano adsorbents, River health Science, Monitoring of River Ganga. Prof Sharma is a celebrated researcher in renewable fuels and sustainability with more than 12000 citations.

Panelist 6:

**Dr Anirudh Gautam**

Principal Executive Director

Research Designs & Standards Organization

Lucknow 226011, India

Email: gautam.anirudh@gov.in



Dr Anirudh Gautam is a mechanical and electrical engineer from the prestigious SCRA scheme of Indian Railways. He has served initial years on the Indian Railways in the maintenance of the carriage and wagon, maintenance and operation of steam locomotives, operation and maintenance of diesel locomotives, and train and crew management in the challenging Eastern Sector Indian Railways. He is credited with designing the first hotel load feature on an export locomotive and was instrumental in building the first indigenous EMD design locomotive in India at DLW. His thesis work at IIT Kanpur on biodiesel led to B10 blends on all diesel locomotives of Indian Railways. He has been working on researching and developing alternate and advanced propulsion systems. His main areas of interest are energy production devices, fuel cells, hybrid power trains and sustainable motive power systems, control systems development, structures optimization, and rail wheel dynamics. Dr Gautam is a recipient of various awards by the Ministry of Railways, including the coveted National Award for Outstanding Service by the Minister of Railways. He holds a Masters in Quality management from BITS Pilani, a Masters of Engineering in Engine Systems from University of Wisconsin, Madison, USA, and a PhD in Mechanical Engineering from IIT Kanpur. He is an Adjunct Professor at IIT Kanpur in Electrical Engineering Department.

## Session 2A: Engine Combustion Modelling, Simulation and Sprays

Moderator 1:

**Dr Pravesh Chandra Shukla**

Assistant Professor

Department of Mechanical Engineering

Indian Institute of Technology Bhilai

Email: pravesh@iitbhilai.ac.in



Dr Pravesh Chandra Shukla is an Assistant Professor in the Department of Mechanical Engineering at Indian Institute of Technology Bhilai. Dr Shukla received his PhD from Indian Institute of Technology Kanpur. He has also worked as Senior Research Associate (SRA, Pool Scientist) at IIT Kanpur. Before joining IIT Bhilai, he was a post-doctoral researcher in the Division of Combustion Engines, Department of Energy Sciences, Lund University, Sweden. He is a recipient of the Young Scientist Award from the International Society for Energy, Environment and Sustainability. Dr Shukla mainly works in Internal Combustion Engines and Alternative fuels for transportation. He investigates the emission characteristics for alternative fuels like biodiesel, HVO, and alcohols for conventional and advanced heavy-duty compression ignition engines. During his doctoral, he was mainly involved in the physicochemical characterization of diesel engine exhaust using non-noble metal-based mixed oxides diesel oxidation catalysts. He has published more than 28 technical articles in international journals and conference proceedings

Moderator 2:

**Dr Gabriele Di Blasio**

Scientist, STEMS of the National Research Council

Italy

Email: gabriele.diblasio@stems.cnr.it



Dr Gabriele Di Blasio is currently Research Scientist at the National Research Council of Italy. His main research interest is focused on advanced technologies and fuels for propulsion and energy conversion systems. He has led various research projects in the field of internal combustion engine technology and fuel development. He has contributed to private and public projects in cooperation with universities, research centers, and OEMs. He received his PhD in Mechanical Engineering in 2012. Formerly Dr G. Di Blasio worked as an R&D responsible engineer in the industry sector, leading projects to develop dual fuel systems for heavy-duty engines. He is serving as Editor and reviewer for several indexed journals of national and international repute. He has authored over 70 peer-reviewed journals, conference proceedings, books, book chapters, and technical reports. He is a member of the SAE International and SAE Engine committee.



Panelist 1:

**Prof A. Ramesh**

Institute Chair Professor

Department of Mechanical Engineering

Indian Institute of Technology Chennai

Chennai 600 036, India

Email: aramesh@iitm.ac.in



Prof A. Ramesh has a Ph.D in Internal Combustion Engines from IIT Madras. He did his post-doctoral research at Ecole National Superior De Nantes (EMN), France. He is currently an Institute Chair Professor at IIT Madras and has worked in the engine R & D group in BEML and also as Assistant Professor in IIT Delhi. His research interests include engine combustion and emission control, GDI engines, HCCI engines, hybrid electric drives, engine instrumentation and control and innovative engine technologies. He has guided several students for their Ph.D and Masters degrees and has published more than 175 research papers in Journals and Conferences. He works on several projects jointly with Automotive Industries and has many patents. He has received the Srimathi Marti Annapurna Gurunath Award for Excellence in Teaching from IIT Madras, Life Time Achievement Award from SAE India (Southern Section) and the Bagyalakshmi Krishna Iyenger Award at IIT Madras. He has served as the Chairman of the Center for Continuing Education at IIT Madras. He has also served on committees in DST, MNRE, CSIR, TIFAC, DRDO, AICTE, NITs and IITs.

Panelist 2:

**Prof Jacek Hunicz**

Professor

Department of Powertrains

Lublin University of Technology

Poland 20-618

Email: j.hunicz@pollub.pl



Prof Jacek Hunicz (PhD, DSc.) is an associate professor and head of Powertrains Laboratory at the Lublin University of Technology, Poland. His track record includes experimental engine research and renewable low-carbon fuels. In the area of combustion research, his studies are centered on the control strategies for low-temperature combustion in HCCI engines, including the NVO fuel reforming. With over 23 years of professional expertise in combustion engines and powertrain development, Prof Hunicz is a grant holder of several relevant nationwide projects funded by the Ministry of Science and Higher Education and National Science Centre. He is a member of several international research groups. He is also an innovation consultant for domestic off-road vehicle and bus manufacturer Ursus and a technical advisor to the Polish military industry in the field of powertrain testing. Since 2018, he has been a Polish Scientific Society for Combustion Engines board member.

Panelist 3:

**Prof Burak Zincir**

Assistant Professor

Department of Marine Engineering

Istanbul Technical University

Turkey - 34467

Email: bzincir@itu.edu.tr



Dr Burak Zincir has been working at the Marine Engineering Department of Maritime Faculty, Istanbul Technical University since 2013, and he has been an Assistant Professor since 2020 at the same department. His research areas are alternative marine fuels, performance and emissions of marine diesel engines, decarbonization methods and technologies, and energy efficiency on ships. His MSc thesis is on the application of hydrogen as marine diesel engine fuel, and his PhD thesis is on an alternative fuel assessment model for ships and experiments on the effect of methanol on diesel engines. He currently works on alternative marine fuels such as ammonia, biofuels, and electrofuels.

Panelist 4:

**Prof Amir Bin Aziz**

Professor

Department of Mechanical Engineering

Universiti Malaysia Pahang

Malaysia 26600

Email: amiraziz@ump.edu.my



Dr Amir Aziz graduated from the Faculty of Mechanical Engineering, Universiti Teknologi Malaysia in 2008. After receiving his master's degree in mechanical engineering at Universiti Teknologi Technology Malaysia, he joined the Faculty of Mechanical Engineering, the University of Malaysia Pahang in 2011. In 2020, he completed his PhD entitled "High Octane Number Fuels in Advanced Combustion Modes for Sustainable Transportation" at the Division of Combustion Engines, Department of Energy Sciences, Lund University, Sweden. Then he joined the Faculty of Mechanical and Automotive Engineering Technology, Universiti Malaysia Pahang in 2020 as a senior lecturer. His primary research interests include combustion, internal combustion engine, alternative energy, and propulsion system.

Panelist 5:

**Prof R Santhosh**

Assistant Professor

Department of Mechanical Engineering

Indian Institute of Technology (BHU) Varanasi

Varanasi 221005, India

Email: rsanthosh.mec@iitbhu.ac.in



Dr Santhosh completed his PhD at Indian Institute of Science, Bengaluru in 2016. In IISc, he worked with Prof Saptarshi Basu on aspects related to swirl flows and flames and combustion instability. Later he moved to Rolls-Royce University Technology Centre at the University of Nottingham to work as a post-doctoral fellow. Later, he worked at the Gas Turbine Research Centre (GTRC) at Cardiff University, the UK, for another post-doctoral experience. He joined IIT Dharwad as Assistant Professor in 2018 and moved to IIT(BHU) in 2021. His research interests are experimental combustion using laser diagnostics, Atomization and sprays, and CFD.

Panelist 6:

**Prof Grzegorz Koszalka**

Associate Professor

Department of Mechanical Engineering

Lublin University of Technology, Poland

Lublin 20-618, Poland

Email: g.koszalka@pollub.pl



Dr Grzegorz Koszalka (DSc.) is an Associate Professor in Mechanical Engineering at the Department of Sustainable Transport and Powertrain Systems of the Lublin University of Technology, Lublin, Poland. His expertise concerns the modelling of gas and oil flows as well as tribology mainly in application to the piston-rings-cylinder system of IC engines. He closely cooperated with industry. In addition to research on improving the design of the piston-rings-cylinder assembly, he was a leader of the projects in which a new universal semi-trailer and a modular low-bed semi-trailer for long and heavy loads were designed and tested.



Panelist 7:

**Prof Shailendra Sinha**

Professor

Department of Mechanical Engineering

Institute of Engineering & Technology, Lucknow

Email: shailendra.sinha@ietlucknow.ac.in



Dr Shailendra Sinha is presently working as Professor, Mechanical Engineering and also holding the portfolio of Dean (PG& R) at IET Lucknow. He completed his BTech in Mechanical Engineering in 1989 from KNIT Sultanpur, M.E. in 1992 from University of Roorkee presently known as IIT Roorkee, and PhD in 2008 from IIT Kanpur. He served the industry from 1993-1996 at various positions and then joined IET Lucknow as Lecturer in Mechanical Engineering in 1996 and become Professor in 2012 at IET Lucknow. His Area of interest is IC Engine, Fuels, Energy, vehicle emissions, combined power cycles etc. He guided several MTech and PhD students at IET Lucknow and Dr APJAKTU, Lucknow. He Published many papers in International and National Journals, conferences etc. He has worked at many administrative capacities like additional COE, Prof I/c Training & Placement, Head of department etc. at IET Lucknow, UP state engineering Entrance examination, various committees of Govt of UP and Associate Dean at AKTU Lucknow.

## Session 3A: Coal Biomass Combustion for Power Generation

Moderator 1:

**Prof Swarnendu Sen**

Professor

Department of Mechanical Engineering

Jadavpur University

Kolkata 700032, India

Email: sen.swarnendu@gmail.com



Dr Swarnendu Sen is a Professor of Mechanical Engineering at Jadavpur University. He did his graduation, masters and doctoral degrees from Jadavpur University. He did his post-doctoral research at the University of Illinois at Chicago, Virginia Tech, and the Technical University of Munich. He is a DAAD fellow and fellow of the International Society for Energy Environment and Sustainability (ISEES) and West Bengal Academy of Science and Technology (WAST). His area of interest is mainly heat transfer and reacting & multiphase flow. He has authored more than 200 research papers in different journals and conferences.

Moderator 2:

**Prof Aditya Saurabh**

Assistant Professor

Department of Mechanical Engineering

Indian Institute of Technology Kanpur

Kanpur 208016

Email: asaurabh@iitk.ac.in



Dr Aditya Saurabh joined the Indian Institute of Technology Kanpur as an Assistant Professor in 2019 and is presently working primarily on thermoacoustic instability and liquid jet atomization. He has previously worked on the topics of thermoacoustic instability, the acoustic response of premixed swirl-stabilized flames, combustion noise, active and passive acoustic damping in gas turbine combustors as a doctoral student, and subsequently as a scientific employee at TU Berlin.

Panelist 1:

**Prof Kamal Kishore Pant**

Professor

Department of Chemical Engineering

Indian Institute of Technology Delhi

Delhi 110016, India

Email: kkpant@chemical.iitd.ac.in



Prof Kamal Kishore Pant (K. K. Pant, B.Tech Chemical Engineering, 1987 HBTI) is a Petrotech Chair Professor in the Department of Chemical Engineering at IIT Delhi. He is an Adjunct Faculty at the University of Saskatchewan, Honorary Faculty at the University of Queensland, Australia, and Joint Faculty in the Centre for Rural Development at IIT Delhi. He is also presently holding an administrative position as Dean, Faculty at IIT Delhi. Prof Pant is a fellow of several academies: Royal Society of Chemistry, London (FRSC, London), National Academy of Science India, (NASI), Indian National Academy of Engineering (INAE), Biotech Research Society of India (BRSI), Institution of Engineers India (FIE(I)), Indian Institute of Chemical Engineers (FIChE), Fellow of Indian Desalination Association (InDA).

Panelist 2:

**Prof Santanu De**

Associate Professor

Department of Mechanical Engineering

Indian Institute of Technology Kanpur

Kanpur 208016, Uttar Pradesh

Email: sde@iitk.ac.in



Dr Santanu De is an Associate Professor in the Mechanical Engineering, IIT Kanpur. He received a Bachelor of Engineering from the North Bengal University in 2002 and an M.Tech. from the IIT Kanpur in 2004, both in Mechanical Engineering. He received his PhD in Aerospace Engineering from the Indian Institute of Science, Bangalore, in 2012. Prior to his joining at IIT Kanpur in 2014, he served two years at the Michigan Technological University as a postdoctoral research associate and one year at the Institute of Combustion Technology (ITV), University of Stuttgart. He also worked as a scientist at the Liquid Propulsion Systems Center, Indian Space Research Organization, between 2004 and 2005. His primary area of research is numerical modeling of turbulent combustion, spray atomization and combustion, coal gasification, optical diagnostic of combustion, and gas turbine combustion.

Panelist 3:

**Prof Kumar Patchigolla**

Reader

Cranfield University

Bedford MK43 0Al, United Kingdom

Email: k.patchigolla@cranfield.ac.uk



Dr Patchigolla is a Reader in Low Carbon Energy Systems. His role is scientifically biased, focused on fundamental research (bridging TRLs 1 to 4), which he applies to a transformative industrial practice (moving TRL from 4 to 7/8). His focus is the development of a world-leading research capability in "heat recovery and energy storage". He is involved in the demonstration of low-temperature heat storage (rock bed), thermal driven absorption chiller (Li-Br), combustion (fluidized, pulverized), gasification (fixed, fluidized), capture of CO<sub>2</sub> (Chemical/Calcium looping) and CO<sub>2</sub> pipeline and shipping transport facilities, evaluating the effects on component durability and gas cleaning requirements of systems using a wide range of solid fuels. These include biomasses, waste and sewage sludge, and coal either alone or in different co-fired combinations and supervision of research activities using the Pilot Scale Advanced Capture (PACT) facilities.

Panelist 4:

**Prof Amitava Datta**

Professor

Department of Power Engineering

Jadavpur University

West Bengal 700032

Email: amitava.datta@jadavpuruniversity.in



Dr Amitava Datta is a professor in the Department of Power Engineering of Jadavpur University. He completed his graduate education in Mechanical Engineering from Jadavpur University and his PhD from IIT Kharagpur. Dr Datta is a recipient of the Alexander von Humboldt Fellowship in Germany. His research interests include combustion, atomization, energy, thermodynamic modeling, and application of CFD in reacting flows, microfluidics, and biological flows.

Panelist 5:

**Dr P. A. Lakshminarayanan**

Advisor

Simpson Engines

Chennai-600002, Tamil Nadu, India

Email: lakshminarayananloganayagi@gmail.com



Dr P. A. Lakshminarayanan is currently an Advisor to Simpson Engines, Chennai. He developed models for heat release and emissions for diesel engines based on the study of fuel-air mixing at the wall in turbulent sprays with multiple injections. He also studied the wear of liners having a general surface texture, and tribology of valves, cams, pistons, and rings. He is credited to have designed 28 efficient and emission compliant diesel and CNG engines for off- and on-road applications, in addition to eight diesel and CNG engine platforms and 150 types of engines, which are commercially successful for their efficiency and cost-effectiveness. He is a fellow of SAE international and INAE. He received the Arch T. Colwell award (1984) from SAE international and AVL awards for conference papers (2005, 2008, and 2010). He has authored 45 peer-reviewed international journals and conference papers with nine patents to his credit.

Panelist 6:

**Prof. Onkar Singh**

Founder Vice-Chancellor of Madan Mohan Malviya

University of Technology

Gorakhpur- 273016, Uttar Pradesh

Email: [osingh@hbtu.ac.in](mailto:osingh@hbtu.ac.in)



Prof Onkar Singh working as a Professor in the Department of Mechanical Engineering at Harcourt Butler Technical University, Kanpur, India. He obtained his Masters and Doctorate degrees in Mechanical Engineering from MNNIT Allahabad, India. He is Professor of Mechanical Engineering at Harcourt Butler Technical University, Kanpur since January 2007. He has also been Vice-Chancellor of Uttar Pradesh Technical University, Lucknow for short stint. He has authored/co-authored 10 books, 09 book chapters, 223 papers in journals & conferences, 88 popular articles and edited 06 conference proceedings. He has guided 13 Ph.D., 25 MTech., students and completed 07 research projects. He holds 03 patents, 01 copyright, and two National Records - LIMCA Book of Records, March 2014 & February 2015 for “development of air turbine engine” & “First academicians’ work in US school text book”.

## **Session 4A: Future of IC Engine Technology and Roadmap**

Moderator 1:

**Prof Raja Banerjee**

Professor

Department of Mechanical and Aerospace Engineering

Indian Institute of Technology Hyderabad

Kandi 502285, India

Email: rajabanerjee@iith.ac.in



Dr Raja Banerjee is a Professor in the Department of Mechanical and Aerospace Engineering and the current Dean of Administration of IIT Hyderabad. He obtained his Bachelor's degree in Mechanical Engineering from the University of Rewa (1995), Master's degree in Cryogenic Engineering from IIT Kharagpur (1998), and PhD in Mechanical Engineering from the University of Missouri Rolla (2001). Following his PhD, he worked as a Senior Research Engineer in Mark IV Automotive Inc., USA for close to 8 years before joining IIT Hyderabad. His primary research interest is multiphase flow, focusing on liquid spray and atomization, combustion of new and alternative fuels, turbulence, and parallel computing for CFD applications. He has co-authored several papers on these topics which are reported in leading journals and conference proceedings.

Moderator 2:

**Prof Dhananjay Kumar Srivastava**

Assistant Professor

Department of mechanical engineering

Indian Institute of Technology Kharagpur

West Bengal, India

Email: srivastava@mech.iitkgp.ac.in



Dr Dhananjay Kumar Srivastava is currently working as an Assistant Professor of Mechanical Engineering at Indian Institute of Technology Kharagpur since April 2015. Dr Srivastava has done PhD from Engine Research Laboratory of IIT Kanpur in 2013. He was a Research Fellow at the University of Birmingham, UK in 2014. His areas of expertise include laser ignition of SI engines, combustion visualization, emission control, engine calibration, gasoline direct injection, etc. Dr Srivastava was recipient of the Gandhian Young Technological Innovation award in March 2013, Pool Scientist Fellowship by CSIR, India from 2010-2013.



Panelist 1:

**Prof Gautam Kalghatgi**

Consultant Professor

Shanghai Jiao Tong University,

Shanghai 200240, China

Email: kalghatgi@gmail.com



Prof Kalghatgi has a B.Tech. from IIT Bombay (1972) and PhD from Bristol University (1975) in Aeronautical Engineering. From 1975-1979, he did post-doctoral research in turbulent combustion at Southampton University. Dr Gautam Kalghatgi joined Saudi Aramco in October 2010 after 31 years with Shell Research in the UK. He has over a hundred external publications on combustion, fuels, and engine research and is the author of a book, "Fuel/Engine Interactions". He is a Fellow of the Royal Academy of Engineering, SAE and I.Mech.E. He was a Visiting Professor at Imperial College, London. He has been adjunct/part-time/visiting Professor at KTH, Stockholm/ Technical University, Eindhoven/ Sheffield University. He is on the editorial boards of the International Journal of Engine Research, Journal of Automobile Engineering, and Journal of Fuels and Lubricants (SAE).

Panelist 2:

**Prof Antonia Garcia**

Associate Professor

Department of Thermal and Reciprocating Engines

Universitat Politècnica de Valencia

Spain - 46022

E-mail: angarma8@mot.upv.es



Dr Antonio García is an Associate Professor in the Department of Thermal and Reciprocating Engines at the Universitat Politècnica de Valencia. He develops his teaching responsibilities in the framework of combustion fundamentals. His research activities have been focused on Low-Temperature Combustion topics during the last years. In particular, extensive research work on the use of high-efficiency premixed combustion strategy using two-fuels with different auto-ignition characteristics in CI engines. This effort has led to the publication of more than 130 peer-reviewed articles, being an active member in SAE, acting as session organizer, reviewer, and author at different events. He received his M.S. and PhD in Mechanical Engineering from the Universitat Politècnica de València. Prof Garcia has been a visiting professor at the Combustion Engines division at Lund University and a visiting researcher at RWTH Aachen University, where he developed relevant works on the implementation of advanced combustion systems on CI engines. In addition, Dr Antonio is Editor in Chief of Results in Engineering Journal and Transportation in Engineering Journal and part of the Advisory Board of Applied Thermal Engineering and Progress in Energy and Combustion Science Journals.



Panelist 3:

**Prof Choongsik Bae**

Professor

Department of Mechanical Engineering

Korea Advanced Institute of Science and Technology

South Korea -34141

Email: csbae@kaist.ac.kr



Prof Bae Choongsik received his Ph.D degree from Imperial College in 1994 and is currently working in the Department of Mechanical Engineering, KAIST, Korea. His area of research includes combustion in IC engines, laser diagnostics and instrumentation, thermofluid experiments, and fuel atomization. He has published several journal papers. He heads the Future Transport Power Laboratory at KAIST. His research group is devoted to fundamental research on 'transport power plants', including maritime, aviation, and automotive sectors. Research efforts are underway with an eye on highly efficient and clean engines utilizing new technologies such as homogeneous charge compression ignition (HCCI), low-temperature diesel combustion, alternative fuel, direct-injection spark-ignition (DISI), and high-speed direct-injection (HSDI) diesel engines for the sake of developing next-generation engines.

Panelist 4:

**Prof Mayank Mittal**

Associate Professor

Department of Mechanical Engineering

Indian Institute of Technology Madras

Chennai 600036, India

Email: mmittal@iitm.ac.in



Dr Mayank Mittal is an Associate Professor in the Department of Mechanical Engineering at IIT Madras. He received his PhD in Mechanical Engineering from Michigan State University, USA in 2009. He then worked as a Post-Doctoral Research Fellow at Michigan State University and as Senior Engineer at the technical centers of Caterpillar and Generac Power Systems of USA before joining IIT Madras. His research interests include internal combustion engines, both spark-ignition and compression-ignition types, flow and combustion diagnostics for fundamental understanding of in-cylinder processes, alternative fuels, and engine and engine components modeling, including after-treatment devices.

Panelist 5:

**Prof Pankaj Sharadchandra Kolhe**

Associate Professor

Department of Mechanical and Aerospace Engineering

Indian Institute of Technology Hyderabad

Hyderabad 502285, India

Email: [psk@mae.iith.ac.in](mailto:psk@mae.iith.ac.in)



Dr Pankaj Kolhe received his bachelor's in mechanical engineering from the University of Pune and Master of Technology in Aerospace Propulsion from IIT Bombay. He pursued his PhD at the University of Alabama on "Statistical tomography for scalar turbulence measurements using line of sight optical techniques". Dr Pankaj Kolhe is currently working as an Associate professor in the Mechanical and Aerospace Engineering Department at IIT Hyderabad since December 2013. His current research focuses on liquid fuel combustion and alternative fuels in automotive and power generation combustion systems. His recent contributions are in the field of droplet breakup and spray characterization for IC Engines and simulated Gas Turbine combustors.

Panelist 6:

**Prof Rakesh Maurya**

Associate Professor

Department of Mechanical Engineering

Indian Institute of Technology Ropar

Ropar 140001, India

Mail: [shishir@iitr.ac.in](mailto:shishir@iitr.ac.in)



Dr Rakesh Kumar Maurya has been a faculty member in the Department of Mechanical Engineering, Indian Institute of Technology Ropar, since August 2013. Before joining IIT Ropar, he was working as a senior research associate (Pool Scientist-CSIR) at IIT Kanpur. He received his bachelor's, master's, and PhD degrees in Mechanical Engineering from Indian Institute of Technology Kanpur, India. He received the Early Career Research Award from the Science and Engineering Research Board (SERB), Government of India, New Delhi. He is also a recipient of the Young Scientist Award (2016) from the International Society for Energy, Environment and Sustainability. He is the author of the two books titled "Characteristics and Control of Low Temperature Combustion Engines" and "Reciprocating Engine Combustion Diagnostics" published by Springer International Publishing AG in 2018 and 2019, respectively. He has also edited 1 book published by Springer and published 15 book chapters and more than 40 peer-reviewed journal papers. He teaches and conducts research in the area of internal combustion engines. His areas of interest are low-temperature engine combustion, alternative fuels, engine combustion diagnostics, engine instrumentation, combustion and emission control, particulate matter characterization, engine management systems, engineering ethics, and philosophy of science.

## Session 5A: Sustainable Energy from Carbon Neutral Sources

Moderator 1:

**Prof Balkrishna Mehta**

Assistant Professor

Department of Mechanical Engineering

Indian Institute of Technology Bhilai

Chhattisgarh 492015

Email: krishnab@iitbhilai.ac.in



Dr Balkrishna is currently working as an Assistant Professor in the Department of Mechanical Engineering at IIT Bhilai. Previously, he has worked at IIT Guwahati and as post-doctoral fellow at ENSMA, Poitiers, France, and as manager at Tata Motors Technical Center. His research includes experimental heat transfer in two-phase flow in mini/micro-systems, Heat pipes and Thermosyphons, Heat transfer of ferrofluids in the presence of magnetic field, Droplet dynamics, and evaporation ferrofluid, InfraRed thermography.

Moderator 2:

**Prof Himanshu Tyagi**

Associate Professor

Department of Mechanical Engineering

Indian Institute of Technology Ropar

Punjab 140001, India

E-mail: himanshu.tyagi@iitrpr.ac.in



Dr Himanshu is currently working as an Associate Professor in the Department of Mechanical Engineering at IIT Ropar. He has previously worked in the Steam Turbine Design Division of Siemens (in Germany and India) and the Thermal and Fluids Core Competency group of Intel Corp (in the USA). At present, he is working to develop nanotechnology-based clean and sustainable energy sources as well as water purification techniques with a team of several PhD, master, and undergraduate students.

Panelist 1:

**Prof K. S. Reddy**

Professor

Department of Mechanical Engineering

Indian Institute of Technology Madras

Chennai 600036, India

Email: ksreddy@iitm.ac.in,



Prof Reddy is working as Professor (HAG) at the Department of Mechanical Engineering at IIT Madras. He was also an Honorary Professor at the University of Exeter, UK for six years, and Adjunct Professor at AcSIR, CEERI, SERC, Chennai for three years. He is a Member of, Board of Governors (BoG) of IIT Tirupathi and Visitor's Nominee for Faculty Selection at NITs and CFI. He has organized various conferences and workshops and held several Academic-Administrative positions at IIT Madras. He has received several awards and is a Fellow of the Indian National Academy of Engineering (FNAE).

Panelist 2:

**Prof Dibakar Rakshit**

Associate Professor

Centre for Energy Studies

Indian Institute of Technology Delhi

Delhi, India

E-mail: dibakar@ces.iitd.ac.in



Dr Dibakar Rakshit is an Associate Professor at IIT Delhi with nineteen years of experience in thermofluid sciences, especially in the design and optimization of energy systems. He has a PhD from The University of Western Australia and post-doctoral research experience at CSIRO, Australia. His special interests lie in Energy storage devices (system optimization/ characterization of storage materials), Thermofluid studies of solar energy coupled heat exchanger designs, Battery Thermal Management Systems, Polygeneration, Heat Exchanger using PCM, Energy conservation in buildings, Green building concepts, Waste heat recovery, Transient modelling and simulation of high-temperature systems, Solar assisted refrigeration systems, Multiphase flow studies, and Emission control system designs. Dr Rakshit has a track record of publishing around 100 research papers in peer-refereed journals, 14 monographs, and around 50 refereed conference papers.

Panelist 3:

**Dr Sivasankaran Harish**

Principal Researcher

The University of Tokyo,

Tokyo 113 8654, Japan

Email: harish@photon.t.u-tokyo.ac.jp



Dr Harish is working as a Principal Researcher at the University of Tokyo, Japan. Previously he worked as Assistant Professor at Kyushu University, Japan; Visiting Lecturer at the University of Edinburgh, Scotland; Assistant Professor at IIT Mandi. He was also JSPS Post Doctoral Researcher at Kyushu University, Japan, and Visiting Researcher at the Department of Mechanical Engineering in Stanford University USA. He is a recipient of the “Henk Bodt” Scholarship for the Master’s program at the Eindhoven University of Technology, Netherlands, and “Royal Dutch Shell” – “Personal Development Award” for excellence in academics and leadership skills (2008).

Panelist 4:

**Dr Jagan Gorle**

Program Manager

Cargotec Corporation

Helsinki-00180, Finland

Email: jagan.gorle@cargotec.com



Dr Jagan Gorle is the program manager at Cargotec Oyj, a global leader in sustainable cargo handling solutions and services based in Finland. His working areas include emerging technologies, ranging from sustainability, carbon neutral systems, automation, data & digitalization through national / EU funding projects. Prior to this, he was with Parker Hannifin, a Fortune 250 Company, where he was chairing the innovation council and leading the R&D activities in hydraulic and industrial process applications. In addition, he served the International Association of Innovation Professionals as an Advisory Board Member during 2020-2021. He has working experience in diverse research and innovation projects in India, France, and Norway. He received PhD in applied fluid mechanics and MBA in project management.

Panelist 5:

**Sh. Mritunjay Kumar Shukla**

Senior Scientist & Head of Area

CSIR-Indian Institute of Petroleum Dehradun

Uttarakhand 248005, Indian

Email: mshukla@iip.res.in



Mritunjay Kumar Shukla is a Senior Scientist in the Automotive Fuel and Lubricant Application Division of the Indian Institute of Petroleum, Dehradun and head of the Exhaust After-treatment Technologies Area. He has over 15 years of R&D experience. His areas of research are IC Engines, After treatment devices, and Alcohol fuels. Young Scientist Award 2017 of International Society for Energy, Environment and Sustainability. Young Scientist Award of Research Awards-VIRA 2017 in the field of automotive fuels and lubricants by Venus International Foundation. Rashtriya Gaurav Award 2017 by India International Friendship Society.

Panelist 6:

**Prof Prashant Sonar**

Associate Professor and ARC Future Fellow

School of Chemistry

Queensland University of Technology

Australia

Email: sonar.prashant@qut.edu.au



Dr Prashant Sonar is the Associate Professor and ARC Future Fellow at Nanotechnology and Molecular Science Discipline, School of Chemistry, Physics and Mechanical Engineering, Queensland University of Technology, Australia. Prof Sonar is actively working in the field of Printable Organic Semiconductors, Flexible plastic electronics, Optoelectronics, Bioelectronics, p-type, n-type and ambipolar organic field-effect transistors and logic circuits, Organic solar cells and Organic photodiodes, etc. Prof Sonar has contributed to more than 125 research publications in reputed peer-reviewed journals and has filled more than ten patents. Prof Sonar is a Member of International Society for Plastics and Electronics (SPIE)-USA (2011-present), Member of Singapore National Institute of Chemistry (SNIC)-Singapore (2012-present), Member of Royal Australian Chemical Institute, Australia (2015), and Foreign Fellow of Maharashtra Academy of Sciences, India (2019) Fellow of Royal Chemical Society, UK (2017). Prof Sonar has received the Prestigious Future Fellowship from Australian Research Council.



## Session 6A: Combustion: Emerging Paradigm

Moderator 1:

**Prof Sudarshan Kumar**

Professor

Department of Aerospace Engineering

Indian Institute of Technology Bombay

Powai 400076, India

Email: sudar@aero.iitb.ac.in



Prof Sudarshan Kumar has received his Master's (2000) and PhD degrees (2004) from the Aerospace Engineering Department, Indian Institute of Science Bangalore, India. He worked as a Post-doctoral researcher in Energy Dynamics Laboratory, Tohoku University, Sendai, Japan, from 2004 to 2006. Since 2006, he has been working as a faculty member in the Department of Aerospace Engineering, Indian Institute of Technology Bombay Powai Mumbai, India. His research interests include micro combustion, patterns formation of flames, laminar burning velocity measurement, flame dynamics in microchannels, numerical modeling of flame propagation, mild/flameless combustion with gaseous, liquid fuels, biofuels, spray combustion, lifted flames and their modeling, modeling of combustion systems, and emission reduction from combustion systems.

Moderator 1:

**Prof Bhupendra Khandelwal**

Associate Professor

Fuels and Combustion

The University of Alabama

Tuscaloosa, AL 35487

Email: bhupendra.khandelwal@gmail.com



Dr Bhupendra Khandelwal is working as an Associate Professor for Fuels and Combustion at the University of Alabama. He is working on combustion, emissions, and performance of alternative fuels to be used in gas turbine engines and other combustion sources. Prior to this position, Dr Khandelwal held the position of Assistant Professor (Lecturer) at The University of Sheffield (Low Carbon Combustion Centre, LCCC). He was leading combustion and emissions research areas at LCCC.



Panelist 1:

**Prof Saptarshi Basu**

Professor of Mechanical Engineering  
Indian Institute of Science Bangalore  
Bangalore- 560012, India  
Email: sbasu@iisc.ac.in



Prof Basu completed his PhD in 2007 from University of Connecticut. Prof Basu works in the areas of Combustion Instability, Optical Diagnostics in Fuel cells, Plasma Processing of Nano-ceramics, Flame-Vortex Interactions, Heat Transfer in Multiphase Systems, Thin Film Energetic Materials, Biofuels, Droplet Dynamics in Plasma and Combustion Flame, Radiative Heating of Droplets, Acoustic Levitation of Functional Droplets, Atomization and Sprays, Boiling, Droplet Drying.

Panelist 2:

**Prof Arvind G. Rao**

Associate Professor  
Delft University  
Netherland 2628  
Email: [a.gangolirao@tudelft.nl](mailto:a.gangolirao@tudelft.nl)



Dr Arvind Gangoli Rao completed his Masters and PhD from IIT Bombay. Subsequently, he moved to Israel and worked with Prof Levy for his postdoctoral research. He joined Delft university as an assistant professor in 2008. He is currently working as an associate professor at Delft University. His research interests mainly focus on sustainable aircraft propulsion and novel low emission combustion systems. Dr Gangoli Rao has headed several EU projects and is a member of the Advisory Committee for Research and innovation in Europe.

Panelist 3:

**Prof Nam Il Kim**

Associate Professor

Department of Biotechnology

KAIST, South Korea

Daejeon - 34141

Email: [nikim@kaist.ac.kr](mailto:nikim@kaist.ac.kr)



Prof Nam Il Kim completed his PhD from KAIST South Korea in 2001. Subsequently, he has worked with Kaoru Maruta at the Institute of Fluid Science Tohoku University and Prof Ju at Princeton University for his postdoctoral research. He joined Chung-Ang University in Seoul, South Korea, as an Assistant Professor in 2005. Subsequently, Prof Kim moved to KAIST in 2014 as an Associate Professor. Prof Kim works in the areas of premixed flame, diffusion flames, edge flames, flame oscillations, and industrial burners.

Panelist 4:

**Dr Shaun Chan**

Senior Lecturer

School of Mechanical and Manufacturing Engineering

The University of New South Wales

Sydney NSW 2052, Australia

Email: [ging.chan@unsw.edu.au](mailto:ging.chan@unsw.edu.au)



Dr Shaun Chan received his PhD from the University of Adelaide, Australia, in 2011. His doctoral research was on developing instantaneous temperature imaging in sooty flames. Dr Shaun Chan was a postdoctoral researcher at the University of Adelaide (2011 to 2012) and the University of New South Wales (2012 to 2013) before joining the latter as an academician. Dr Shaun Chan currently leads the Advanced Combustion Diagnostics group (<https://research.unsw.edu.au/projects/advanced-combustion-diagnostics-laboratory>). His team is currently working on funded projects relating to hydrogen combustion and gasoline compression-ignition.

Panelist 5:

**Prof Anirudha Ambekar**

Assistant Professor

Department of Mechanical Engineering

Indian Institute of Technology Goa

Goa 403401, India

Email: anirudha@iitgoa.ac.in



Dr Anirudha Ambekar received his doctoral and Master's degree from IIT Bombay in 2015 and 2007, respectively. His doctoral research was on the topic of combustion characteristics of liquid monopropellants. He was a Post-doctoral Research Fellow at Seoul National University from 2015 to 2018, where he worked on various solid composite energetic materials. He has been working as an Assistant Professor in the School of Mechanical Sciences at IIT Goa since May 2018. He typically works on application-oriented projects involving experimental combustion diagnostics. His research interests include experimental combustion, propellant characterization, chemical kinetics and aging of energetic materials, pollution reduction and optimization of energy conversion systems, alternative fuels, and sustainable combustion

Panelist 6:

**Prof Ajit K Dubey**

Assistant Professor

Department of Mechanical and Industrial Engineering

Indian Institute of Technology Roorkee

Roorkee, Haridwar 247667, India

Email: ajit.dubey@me.iitr.ac.in



Dr Ajit Kumar Dubey obtained his Master's degree in Aerospace Propulsion from IIT Bombay in 2012 and PhD from Tohoku University in 2017. He worked as a postdoctoral researcher from 2017 to 2019 at Hokkaido University. He also worked as an assistant professor from 01/2020 to 10/2021 at Tohoku University. Since November 2021, he has been an assistant professor at IIT Roorkee. His research interests are combustion instability, soot formation, and knocking simulations.

## **Session 1B: Challenges for Desalination and Wastewater Treatment and Possible Solutions**

Moderator 1:

**Prof Swatantra P. Singh**

Assistant Professor

Department of Environmental Science & Engineering

Indian Institute of Technology Bombay

Powai 400076, India

Email: swatantra@iitb.ac.in



Dr Swatantra is an Assistant Professor at IIT Bombay in Environmental Science and Engineering Department; before that, he was a Post-Doctoral Scholar in the Zuckerberg Institute of Water Research at Ben-Gurion University, Israel. He is an environmental engineer with training in pollution control using state-of-the-art technologies. He received his PhD and M.Tech in environmental engineering from the Indian Institute of Technology Kanpur, India. His current research interests are desalination & wastewater treatment by membranes and nanomaterials for environmental remediation. He was the recipient of the INAE Young Engineering Award 2020 and the ISEES Young Scientist Award 2020.

Moderator 2:

**Dr S. Venkata Mohan**

Senior Principal Scientist

CSIR-Indian Institute of Chemical Technology

Hyderabad 500007, India

Email: vmohan\_s@yahoo.com



Dr S. Venkata Mohan has been working as a Senior Principal Scientist in CSIR-Indian Institute of Chemical Technology (CSIR-IICT), Hyderabad, since 1998. Dr Mohan was Visiting Professor at Kyoto University (2005), Alexander von Humboldt (AvH) Fellow at Technical University of Munich, Germany (2001-02), and Kyung Hee International Fellow, South Korea (2018). Dr Mohan is placed in 2<sup>nd</sup> position in India and 29<sup>th</sup> position in the World in the field of 'Biotechnology' by a Stanford University Study on 2% Global Scientist List. Dr Mohan's research majorly intendeds to understand and respond to the human-induced environmental changes in the framework of sustainability in the interface of Environment and Bioengineering. Dr Mohan authored more than 390 research articles, 60 chapters for books, edited 5 books and held nine patents. His publications had more than 23,000 citations with an H-index of 82 (Google Scholar). He has guided 29 PhDs, 2 M.Phils, and more than 100 M.Tech/B.Tech/M.Sc students. Dr Mohan is the recipient of the coveted 'Shanti Swarup Bhatnagar (SSB) Prize' for the year 2014 in Engineering Sciences from the Government of India.

Panelist 1:

**Prof Akhilendra Bhushan Gupta**

Department of Civil Engineering,  
Malaviya National Institute of Technology

Rajasthan, India 302017

Email: abgupta.ce@mnit.ac.in



Prof Gupta working on various aspects of water and air pollution and their impact on human health- evolved pathophysiologicals for fluoride, nitrate, and aluminum toxicities and linkages between air pollution and human respiratory health; and developed low-cost technologies for removal of fluorides and nitrates from drinking water/wastewater. His current research areas advanced bioprocesses for waste treatment, the characterization of PM fractions in air, and the development of field kits for biological analysis.

Panelist 2:

**Prof Roni Kasher**

Professor

Department of Desalination & Water Treatment  
Ben-Gurion University of the Negev

Israel 8410501

Email: kasher@bgu.ac.il



Prof Kasher is interested in the development of novel membranes for water desalination and treatment. Synthetic-organic chemistry approaches are used to prepare membranes with improved surface properties and solute transport for nanofiltration and reverse-osmosis processes. The aim is to deal with obstacles associated with membrane-based water treatment, such as membrane fouling, removal of organic contaminants, and membrane stability while maintaining existing membranes' salt rejection and flux characteristics.

Panelist 3:

**Prof Christopher Arnusch**

Associate Professor

Department of Desalination and Water Treatment,  
Ben-Gurion University of the Negev, Israel

Email: [arnusch@bgu.ac.il](mailto:arnusch@bgu.ac.il)



Dr Arnusch aims to positively impact the field of membrane science, water treatment, and new materials in two distinct ways: i) by exploring and developing unconventional ways to improve membrane fabrication and modification using various printing techniques and ii) exploring and developing new materials, including graphene-based materials. We have made significant advances this past year, especially with a novel material named “laser-induced graphene” (LIG). This material can now be generated on almost all carbon-containing substrates. Notably, we discovered how to apply LIG on porous polymer membranes and demonstrated numerous environmental applications.

Panelist 4:

**Prof Alok Sinha**

Professor

Department of Environmental Science and Engineering  
Indian Institute of Technology (ISM) Dhanbad

Jharkhand, India 826004

Email: [Alok@iitism.ac.in](mailto:Alok@iitism.ac.in)



Prof Sinha is working as a professor in the Department of Environmental Science and Engineering and Dean (Infra) at IIT(ISM) Dhanbad. He has finished his PhD at IIT Kanpur and M.Tech and B.Tech from Z.H.C.E.T., A.M.U., Aligarh. His research interests are water and wastewater treatment, in-situ groundwater remediation, nano-technology for water remediation, and advanced oxidation processes (AOPs).



Panelist 5:

**Prof Kashyap Kumar Dubey**

Associate Professor

School of Biotechnology

Jawaharlal Nehru University

New Delhi 110067, India

Email: kashyapdubey@gmail.com



Prof Dubey is currently working as Associate Professor at the School of Biotechnology, JNU New Delhi. Prof Dubey received his PhD degree in 2008 in the area of Industrial Biotechnology. Dr Dubey's researches are biochemical engineering and wastewater treatment which includes process development of value-added pharmaceutical products (3-demethylated colchicine, betulin, CoQ10, pullulan, and lipstatin), through optimization of enzyme reactions and toxicological studies of micro-pollutants. He is running a research project sanctioned from DST-BRICS, and completed projects funded by DBT (Horizon2020) on Clean Water for Health, BIRAC-DBT and DBT on microbial process development. He has been completed Four major research projects and published 60 research articles in International Journals. He is a Member of Various Scientific societies like IFIBbiop, BRSI, NASc, ISCA, SBC, DST-INSPIRE, MSI, ISCB, and AMI.

Panelist 6:

**Prof Suresh Kumar Dubey**

Professor

Department of Botany

Banaras Hindu University

Varanasi 221005, India

Email: skdubey@bhu.ac.in



Dr Suresh K. Dubey is a Professor in the Molecular Ecology Laboratory, Department of Botany, Institute of Science, Banaras Hindu University, India. His group is working on the structure and function of the microbial community involved in controlling methane emission, screening, and utilization of microbes for their potential role in bioremediation and prevalence of AMR gene-containing bacteria in rivers and wastewater. He has supervised 10 Ph. D., edited two books (Elsevier & Springer) and published over 70 research papers in peer-reviewed journals. He has completed projects funded from DST-SERB, DAE-BRNS, ICMR and currently running the DBT-UKRI and DST-SERB projects. He has won multiple awards for his work, including the Biotech Research Society of India Young Scientist. Medal 2004, DST-BOYSCAST Govt. of India fellowship 2006, INSA visiting fellowship 2012 and 2017, and JSPS Invitation fellowship 2012, among others.

## Session 2B: Bioenergy/ Biofuels

Moderator 1:

**Prof Vijayanand S. Moholkar**

Professor

Department of Chemical Engineering

Indian Institute of Technology Guwahati

Guwahati 781039, Assam

Email: vmoholkar@iitg.ac.in



Dr V. S. Moholkar is a Professor of Chemical Engineering at Indian Institute of Technology Guwahati. His main research interests are cavitation-assisted processes and thermo- and biochemical routes to biofuels. He has published more than 180 papers in international journals. He is also co-inventor of 2 US patents. He is a Fellow of the Royal Society of Chemistry (FRSC) and the Institution of Chemical Engineers, UK (FIChemE).

Moderator 2:

**Prof Ravindran Balasubramani**

Assistant Professor

Dept of Environmental Energy and System Engineering

Kyonggi University, South Korea

Email: kalamravi@gmail.com



Dr B. Ravindran, Ph.D is an Assistant Professor in Department of Environmental Energy & Engineering, Kyonggi University, Suwon, South Korea. His primary research focuses on the development of novel treatment technologies for solid waste and wastewater generated from domestic and industries through aerobic and anaerobic digestion/ fermentation; Composting/vermicomposting, activated carbon, biochar/black carbon amendments, nanotechnology applications, phytotoxic/plant growth studies, etc. Besides, he filed patents based on the above novel process. He has more than hundred publications in international peer reviewed journals, edited three books and published notable book chapters, and three patents to his credit. He has received national and international funds for his research project. He is serving as Academic/Guest Editor in several international journals (Elsevier, Springer, Frontiers, Taylor & Francis, PLOS One, MDPI and Hindawi) and act as a potential reviewer in top international journals, and also received “Outstanding reviewer award” from Elsevier and Springer Journals. He is the member of International Solid Waste Management Association (ISWA)”. He has also received prestigious “Best Researcher- IBET 2017” award (in waste management research).



Panelist 1:

**Prof Long D. Nghiem**

Professor and Director

Centre for Technology in Water and Wastewater

University of Technology Sydney

Ultimo-2007, Australia

Email: [DucLong.Nghiem@uts.edu.au](mailto:DucLong.Nghiem@uts.edu.au)



Dr Long Nghiem is a Professor and Director of the Centre for Technology in Water and Wastewater at the University of Technology Sydney. He was a visiting Professor at Colorado School of Mines in 2009, an August-Wilhelm Scheer Visiting Professor at the Technical University of Munich in 2016, and a Chinese Academy of Science Presidential International Fellow at the Shanghai Advanced Research Institute in 2019. Dr Nghiem has supervised 24 PhD and 11 Master students. He has published over 350 peer-review journal articles. His Scopus h-index is 74 with over 19,000 citations. Dr Nghiem currently serves as an Editor for the Journal of Membrane Science and co-Editor in Chief for Environmental Technology & Innovation. Dr Nghiem's current research work centers around the Water-Energy Nexus, focusing on separation technologies, biological waste and wastewater treatment, biogas technology, and biofuel from microalgae.

Panelist 2:

**Prof Pau-Loke Show**

Professor of Biochemical Engineering

Director of Sustainable Food Processing Research Centre

University of Nottingham Malaysia

Semenyih 43500, Malaysia

Email: [PauLoke.Show@nottingham.edu.my](mailto:PauLoke.Show@nottingham.edu.my)



Prof Pau-Loke Show is a full professor in biochemical engineering at the University of Nottingham, Malaysia. His research interests cover upstream to downstream bioprocessing, microalgae technology, and circular economy. Prof Show published over 550 research papers and more than 200 contributions to international congresses as well as a few patents that are currently applied in the industry. These papers have been cited 10,000 times, and the current h-index is more than 50. Also, he published three books. With his excellent contributions, he has received numerous prestigious academic awards from national and international organizations. He is now serving as an Editor-in-chief in Current Nutrition & Food Science, Editor in Scientific Report, Biocatalysis and Agricultural Biotechnology, Associate Editor at Bioengineered; Current Biochemical Engineering, and Editorial board member in Journal of Hazardous Materials, Bioresource Technology and, Biochemical Engineering Journal. He is also managing guest editor for many good reputed journals such as Journal of Hazardous Materials; Bioresource Technology, Environmental Pollution, Science of the Total Environment.

Panelist 3:

**Prof Luciana Porto De Souza Vandenberghe**

Professor

Bioprocess Engineering and Biotechnology

Federal University of Paraná

Curitiba-80060-000, Brazil

Email: lucianapsv@gmail.com



Dr Luciana Porto de Souza Vandenberghe is a Full Professor of the Bioprocess Engineering and Biotechnology Department, Federal University of Paraná, Curitiba, Brazil. Dr Vandenberghe obtained her PhD in Génie de Procédés Industriels - Biotechnologie from Université de Technologie de Compiègne (2000), France. Her areas of interest include bioprocess engineering & biotechnology and industrial microbiology, focusing on the valorization of solid and liquid agro-industrial products through submerged and solid-state fermentation for biomolecules production, including biofuels, industrial enzymes, organic acids, bioplastics, and plant growth hormones. She has published 125 papers, 53 book chapters, and 23 patents. She is Associate Editor of Bioresource Technology (Elsevier) and Carbon Capture Science and Technology and Editorial Board Member of Biotechnology Research and Innovation (Brazilian Biotechnology Association).

Panelist 4:

**Prof Archana Tiwari**

Associate Professor

Amity Institute of Biotechnology

Amity University

Noida 201313, India

Email: panarchana@gmail.com



Dr Archana Tiwari is working as Associate Professor at Amity University, India. She received her PhD from the University of Allahabad, a gold medalist, and a distinction holder in Botany. Her key research interests include Phycoprospecting Diatoms for wastewater remediation and high-value products. She has been working on algal biotechnology for nineteen years. The research work has been published in 60 international journals. She has also authored ten books and several chapters in Springer, Wiley Blackwell, Elsevier on Algae and its applications. She has delivered talks as an Invited speaker, Keynote speaker and Session Chair in many conferences. She was awarded 'Researcher of the Year Award' in 2016 by Noida International University and 'Distinguished Scientist Award' in 2016 by Society for Recent Development in Agriculture. She established the Diatom Culture Collection of India in 2018 with research funding from the Department of Biotechnology, Government of India.

Panelist 5:

**Dr S. V. Srinivasan**

Senior Principal Scientist

Department of Environmental Engineering

CSIR – Central Leather Research Institute

Chennai 600020, India

Email: [srinivasansv@yahoo.com](mailto:srinivasansv@yahoo.com)



Dr S. V. Srinivasan has 24 years of experience in research and field implementation of waste management projects in leather and allied industries. He has obtained his PhD in Environmental Engineering from Indian Institute of Technology Madras. His major research areas are solid waste to energy by thermal and biological methods, biological and advanced oxidation process for treatment of industrial and recalcitrant wastewater, life cycle assessment, and sustainability assessment of waste treatment technologies. Dr Srinivasan has authored more than 45 publications, including book chapters. He has carried many technical consultancy projects to execute and upgrade common effluent treatment plants with Zero Liquid Discharge (ZLD) and secure landfills. He has won many awards/honors, including from UNEP and UNESCO for participation in conferences. He has successfully completed 2+2 Indo-German collaborative research projects (RESERVES) on co-digestion vegetable and slaughterhouse wastes with pre-treatment using bio-extruder in a pilot plant.

Panelist 6:

**Prof Pratyosh Shukla**

Professor of Biotechnology

School of Biotechnology

Institute of Science, Banaras Hindu University

Varanasi-221005, India

Email: [shuklap@bhu.ac.in](mailto:shuklap@bhu.ac.in)



Prof Pratyosh Shukla is presently working as Professor at the School of Biotechnology, Banaras Hindu University, Varanasi. He was awarded Indo-USA Research Professor at the University of Cincinnati, USA. He has been recently appointed as Visiting Guest Professor at South China University of Technology, Guangzhou, China. His research areas include enzyme technology and protein bioinformatics and its applications in biofuel and other interdisciplinary areas. He has published more than 200 publications in reputed SCI journals, 8 books, and 29 book chapters. He has carried out more than 13 R&D projects funded by national and international agencies as PI/Co-PI, including the prestigious Erasmus grant by European Union (EU). He has more than 5028 citations with H-index of 42 and i10 index of 120. He was recently also featured among a list of Indian Researchers who were Top 2% in 2019 and 2020 by Stanford study. He is a Fellow of National Academy of Agricultural Sciences (FNAAS), Fellow of Biotech Research Society of India (FBRS), and a Fellow of Academy of Microbiological Sciences (FAMSc).

## Session 3B: Microbial Processes and Products

Moderator 1:

**Prof Parmjit S. Panesar**

Professor & Dean

Sant Longowal Inst. of Engineering & Technology

Longowal 148106, India

Email: pspanesarr@gmail.com



Prof Parmjit Singh Panesar is currently working as Professor & Dean (Planning & Development) at Sant Longowal Institute of Engineering and Technology, Longowal, Punjab. His research focuses on the value addition of agro-industry byproducts, prebiotics, food enzymes, bioactives, etc. He has published over 150 scientific papers, 35 chapters and 09 books. Prof Panesar was awarded the “BOYSCAST fellowship” by the Department of Science & Technology (DST), Govt. of India. In recognition of his work, he was elected as “Fellow 2018” by the Biotech Research Society of India (BRSI), “Fellow 2019” by the National Academy of Dairy Sciences, India (NADSI), and prestigious ‘INSA Teachers Award (2020)’ by Indian National Science Academy (INSA). Prof Panesar has also been listed (2020, 2021) in the list of "World Ranking of Top 2% Scientists" published by Stanford University, USA.

Moderator 2:

**Prof Samir Khanal**

Professor

Department of Molecular Biosciences and Bioengineering

University of Hawaii-Manoa

Honolulu 96822, USA

Email: khanal@hawaii.edu



Dr Samir Kumar Khanal is Professor of Environmental Engineering, Dept. of Molecular Biosciences and Bioengineering, University of Hawai‘i at Mānoa (UHM). He received BS (Hons) in Civil Engineering from Malaviya National Institute of Technology, Jaipur, India, and MS in Environmental Engineering from Asian Institute of Technology, Bangkok, Thailand. He obtained PhD in Environmental Engineering from the Hong Kong University of Science and Technology (HKUST), Hong Kong. Khanal is a globally recognized researcher in the field of anaerobic digestion, nanobubble technology, aquaponics, and waste-to-resources. Prof Khanal received highly prestigious Board of Regents’ Medal for Excellence in Research (2018) and CTAHR Dean’s Award for Excellence in Research (2016), UHM, Elsevier’s Impactful Research Award (2018), Pandey Research Excellence Award (2021), and Outstanding Alumni Award, HKUST (2021). He is an Associate Editor of Bioresource Technology. He has served on various committees of other professional societies, including the International Bioprocessing Association (IBA).

Panelist 1:

**Prof Hector A. Ruiz**

Professor

Department of Chemical and Biological Engineering,  
Autonomous University of Coahuila,  
Saltillo, Coah, Mexico

Email: hector\_ruiz\_leza@uadec.edu.mx



Dr Héctor A. Ruiz obtained his PhD in Chemical and Biological Engineering from the Centre of Biological Engineering at the University of Minho. Dr Ruiz is a Full Professor and founder of Biorefinery Group at Autonomous University of Coahuila in Mexico and leader of the biomass pre-treatment stage in the Cluster of Bioalcoholes in the Mexican Centre for Innovation in Bioenergy in Mexico. Dr Ruiz is Editor-in-Chief of Bioenergy Research Journal (Springer), Associate Editor of Biotechnology for Biofuels (Springer), an editorial board member of Industrial Crops and Products Journal (Elsevier) and Biofuel Research Journal, and editor of the book: Hydrothermal Processing in Biorefineries by Springer. Dr Ruiz works to advance lignocellulose and algal (micro-macro) biomass biorefining science and technology to produce high added-value compounds and biofuels (bioethanol), biomass fractionation using hydrothermal processing, biochemical and sugar platform approaches to biomass conversion, and bioreactor design.

Panelist 2:

**Dr Palanivel Sathishkumar**

Associate Professor

School of Chemistry

South China Normal University

Guangzhou 510631, P.R. China

Email: salemsathishkumar@gmail.com



Dr Palanivel Sathishkumar is presently working as Associate Professor in the School of Chemistry, South China Normal University, PR China. Dr Sathishkumar has received his doctoral degree from Periyar University, India in 2010. After his PhD, he started his research career as a Postdoctoral Fellow in Jeonbuk National University, South Korea, followed by Universiti Teknologi Malaysia, Malaysia. Then he continued in South China Normal University, PR China. His topmost articles have been published in high impact international journals such as Chemical Engineering Journal, Journal of Hazardous Materials, Small, Trends in Food Science & Technology, Journal of Cleaner Production, Journal of Colloid and Interface Science, Science of the Total Environment, Environmental Pollution, Carbohydrate polymers, Materials Science and Engineering: C, Applied Surface Science, Chemosphere, Talanta and so on. Presently, Sathishkumar is serving as a Managing Guest Editor for some of the Special Issues in several reputed journals.



Panelist 3:

**Dr Po-Heng Lee**

Senior Lecturer

Environmental Engineering

Imperial College London

London 00000, United Kingdom

Email: po-heng.lee@imperial.ac.uk



Po-Heng (Henry) Lee obtained his Ph.D., M.S., B.S. and A.A.S. in Environmental Engineering from Iowa State University (2010), USA, National Chiao Tung University (2003), National Ilan University (2001), and Hungkuang University (1999), Taiwan, respectively. He joined Imperial College London (2019) after positions at Hong Kong Polytechnic University, China (2012-2018) and Inha University, South Korea (2010-2012). Henry focuses on discrete (quantum and quantum-like) phenomena (e.g., electron tunneling, hopping, gene regulation, etc.) using coupled quantum computing and meta-omics techniques for surpassing classical bio-energetics limitations for sustainable wastewater management. Current interests are on 1) the interaction between microbiomes and conductive materials, 2) microbe responses to sub-nanomolar levels of oxygen and antibiotics, and 3) quantum machine learning on full-scale engineering datasets. The research includes both Quantum computing (e.g., Variational Quantum Eigensolver) and experimental approaches, enabling the manipulations of microbiomes for the environment and human health.

Panelist 4:

**Dr S. Venkata Mohan**

Senior Principal Scientist

CSIR-Indian Institute of Chemical Technology

Hyderabad 500007, India

Email: vmohan\_s@yahoo.com



Dr S. Venkata Mohan has been working as a Senior Principal Scientist in CSIR-Indian Institute of Chemical Technology (CSIR-IICT), Hyderabad, since 1998. Dr Mohan was Visiting Professor at Kyoto University (2005), Alexander von Humboldt (AvH) Fellow at Technical University of Munich, Germany (2001-02) and Kyung Hee International Fellow, South Korea (2018). Dr Mohan is placed in 2<sup>nd</sup> position in India and 29<sup>th</sup> position in the World in the field of 'Biotechnology' by a Stanford University Study on 2% Global Scientist List. Dr Mohan's research majorly intendeds to understand and respond to the human-induced environmental changes in the framework of sustainability in the interface of Environment and Bioengineering. He has guided 29 PhDs, 2 M.Phils, and more than 100 M.Tech/B.Tech/M.Sc students. Dr Mohan is the recipient of the coveted 'Shanti Swarup Bhatnagar (SSB) Prize' for the year 2014 in Engineering Sciences from the Government of India.

Panelist 5:

**Dr R. Parthasarathi**

Principal Scientist

CSIR-Indian Institute of Toxicology Research

Lucknow 226001, India

Email: parthabioc@gmail.com



Dr Parthasarathi Ramakrishnan serves as Principal Scientist of CSIR-Indian Institute of Toxicology Research, Lucknow at Computational Toxicology Facility, and leading BIRAC-BIONEST-IITR and DSIR-IITR-Environmental Monitoring and Intervention Hub. Dr Partha earned his PhD from CLRI, University of Madras. He served as a scientist with highly reputed institutions like the Lawrence Berkeley National Labs, Los Alamos National Laboratory, and Sandia National Laboratories, USA. He has more than 20 years of research experience in applied biochemistry to unravel essential issues in human health and the environment. He has authored more than 115 research articles in journals of high repute with 6900 citations, 45 H-index, and six patents. His work on non-toxic solvent development for bioprocessing helped develop cost-effective processes for industries and environmental safety. His lab is currently developing AI & Machine Learning-based computational toxicity models and databases. He has received several awards, including a prestigious Directors Fellowship, Los Alamos National Laboratory, Fellow of Royal Society of Chemistry, Cray's Dr A.P.J Abdul Kalam Award, Professor S B Chincholkar Memorial Award of the BRSI, and the Young Associate of Indian Academy of Sciences (2008).

Panelist 6:

**Dr Amy Tan**

Research Assistant Professor

Department of Civil Engineering

The University of Hong Kong (HKU)

Hong Kong 000000

Email: gyatan@hku.hk



Dr Amy Tan is a Research Assistant Professor at the Department of Civil Engineering, University of Hong Kong (HKU). She holds a PhD degree in Civil and Environmental Engineering and a Bachelor's degree in Biological Sciences from Nanyang Technological University (NTU), Singapore. Dr Tan's research focuses on waste-to-energy and waste-to-resource (bio)technologies. Specifically, environmental microbiology and biotechnologies for sustainable organic waste management and waste up-cycling (bio-energy and high-value bio-products). She is particularly interested in the underlying metabolic mechanisms and exploiting them to address existing environmental and industrial problems. To date, Amy's research has led to more than 20 research publications in peer-reviewed journals, including Water Research, Nature Scientific Report, and Waste Management. She has also received several awards, including the Environmental Paper Award from the Hong Kong Institution of Engineers in 2019 and the Outstanding Paper Award for Young Engineers/Researchers in 2016.



## **Session 4B: Air Pollution and Climate Change: Sustainable Approaches**

Moderator 1:

**Dr Nitin Labhsetwar**

Chief Scientist & Head, ERM Division  
CSIR-NEERI

Naraina 110028, India

Email: nk\_labhsetwar@neeri.res.in



Dr Nitin Labhsetwar is a PhD in Chemistry with 35 years of research experience in environmental and energy-related research. He has worked as STA/JSPS Fellow and Visiting Overseas Researcher at NIMS, Tsukuba, Japan, and as a Visiting Professor at Kyushu University, Japan, under the Global COE program on Novel carbon resource sciences. He has also worked at other International Laboratories to develop materials and processes, including low-cost and nano-materials/catalysts for their applications in automobile emission control, GHG emission control, diesel soot oxidation, cleaner energy generation, etc. He has over 170 research publications with over 6800 citations and h-index of 44 and i10 index of 104 (google scholar), and 22 international patents, in addition to a few contributions in books. He has also worked on retrofitment as well as other projects for emission control from in-use and other vehicles. He is an identified Expert for the Central Pollution Control Board of India in the area of Air Pollution Control (Vehicular emission) and a Jury member for Technology Challenge for identifying and promoting solutions for mitigating air pollution.

Moderator 2:

**Dr Piyali Das**

Senior Fellow and Area Convenor

The Energy and Resources Institute (TERI) India

New Delhi - 110003, India

Email: piyalid@teri.res.in



Dr Das is a Senior Fellow and Area Convenor in the Advanced Biofuel Division (ADB) at TERI and an adjunct professor in TERI School of Advanced Studies. She is Co-PI in DBT- TERI National Centre of Excellence in Biofuels and Bio commodities. She obtained PhD in Energy Systems Engineering from IIT Bombay and 2.6 years of post-doctoral research experience at the University of Southern California, USA; University of Trieste (Italy); and IIT Bombay, apart from over 15 years of research experience in technology development and process sustainability on thermochemical conversion in TERI. She has over eight patents granted to her credit as a lead inventor, four patents under process, 16 papers in international journals, and five book chapters. She is working on several national and international industry-funded projects and led over 20 projects as PI and Co-PI.

Panelist 1:

**Prof Saori Kashima**

Associate Professor  
Environmental Health Sciences Laboratory  
Hiroshima University  
Hiroshima - 7398511, Japan  
Email: kashima@hiroshima-u.ac.jp



Dr Saori Kashima is an associate professor of the Environmental Health Sciences Department at Hiroshima University. She is an epidemiologist and Public Health Specialist certified by the Japanese Society of Public Health. Her research field is environmental health, community health, and global health. Now, she is also studying “Planetary Health Science”. Her research emphasizes evaluating health effects from environmental factors, including air pollution, natural and man-made disasters, accessibility to the health facility, and other health systems and policies. She had also worked at the ministry of health in Senegal and Madagascar as a JICA volunteer and expert. She has published 84 scientific papers in SCI/SSCI-indexed journals related to epidemiology and public health. She also published the translated book as "Social Determinants of Health Second Edition (Japanese translation)", initially edited by Michael Marmot. Now, also she is writing two books related to COVID-19. She has been serving as a reviewer for more than 20 SCI/SSCI-indexed journals. She was a member of the International Society for Environmental Epidemiology, Japan Public Health Association, Japan Epidemiological Association, and Japan Association for International Health.

Panelist 2:

**Prof Sumit Sharma**

Programme Officer, Kenya  
United Nation's Environment Programme  
Nairobi 00100, Kenya  
Email: sumit.sharma@un.org



Dr Sumit Sharma is working with the United Nations Environment Programme in Nairobi as Programme Officer. He received his PhD in environmental sciences from Indian Institute of Technology Delhi and has more than 18 years of experience in the areas of environment and natural resource management. Before UNEP, he has worked as Director at TERI and has worked with a wide range of environmental and sustainability issues, including air pollution, waste management, etc. He has experience working closely with national and state government bodies, academia, corporates, NGOs, and media. He has several peer-reviewed publications to his credit.

Panelist 3:

**Dr Rakesh Kumar**

Director

CSIR- NEERI

Nagpur 440 020

Email: [r\\_kumar@neeri.res.in](mailto:r_kumar@neeri.res.in)



Dr Rakesh Kumar is Director at CSIR-NEERI since May 2016. He has significant contribution in the field of environmental science and engineering which has wide spectrum such as Air Pollution Control and Management, Water and Wastewater Treatment, Hazardous & Municipal Waste Management, Environmental Impact Assessment and Environmental Audit, Modelling, Health and Climate Change. He has 12 patents on pollution control devices. He has published more than 100 papers in national and international journals and many in national and international conferences. He has authored three Self Learning Books on various topics of Environmental Science and Engineering, one of them for Commonwealth of Learning, Canada. He has membership of many professional societies and is providing advisory as Chairman and member of various national committees in MOEF&CC, CPCB, BIS, MDWS, MPCB and many other Government Institutions and also for Court and NGT matters. He is also worked on various assignments with many international agencies.

Panelist 4:

**Dr B Padma S Rao**

Chief Scientist

Head EAPI Division

CSIR-NEERI

Nagpur-20, India

Email: [ps\\_rao@neeri.res.in](mailto:ps_rao@neeri.res.in)



Dr Padma S Rao did her Masters in Civil Environmental Engg from VNIT, Nagpur, and Bachelors in Chemical Engineering from LIT Nagpur. Rockefeller Foundation Fellow of LEAD INDIA-UK Programme Cohort 8. Member of NCAP, Committee of CPCB, MoEF. Nodal Officer for TTZ matters, CSIR NEERI, Nagpur. SENATE MEMBER of IIIT, Nagpur. She completed more than 150 research/ consultancy projects on air quality monitoring, management, emission inventory, control, environmental audit, and impact assessment, and carrying capacity projects for industries, industrial areas, urban/social and ecologically fragile areas, mines, monuments, developmental projects, etc. Development of various air pollution control systems for emission control of crematoria, small scale Limekilns, and traffic intersection emissions are successfully demonstrated and taken up in pilot mode. The first mobile emission monitoring and control van was developed for emission monitoring and control studies and is being used in industries. Carrying Capacity-based Developmental Planning for National Capital Region (NCR). Environmental Impact & Risk Assessment for Proposed New and Expansion of Projects. Performance evaluation of environmental management systems for cement, steel, textile, and power plants.

Panelist 5:

**Sh. Nimish Singh**

Associate Fellow

The Energy and Resources Institute, India

New Delhi 110 003

Email: Nimish.singh@teri.res.in



Mr Nimish Singh is currently working in The Energy and Resources Institute (TERI) as an Associate Fellow of the Earth Science and Climate Change Division. He has completed his MTech in Atmospheric Oceanic Sciences from IIT Delhi and is pursuing is PhD from the same department in the area of air pollution and climate changes linkages. He has worked both as a team member and project leader in multiple projects on ambient air quality monitoring, source emission monitoring, source apportionment studies, air quality management studies, third party assessment studies, area wide environmental quality management studies, and exposure assessment studies, etc. Additionally, he has also participated in capacity building of state and central pollution control board officials by training them on air quality dispersion modelling.

Panelist 6:

**Dr Altaf Husain Khan**

Senior Principal Scientist

CSIR-Indian Institute of Toxicology Research,

Lucknow 226001, India

Email: ahkhan@iitr.res.in



Dr Altaf Husain Khan is currently Senior Principal Scientist in the Environmental Monitoring Division of CSIR-Indian Institute of Toxicology Research, M G Road, Lucknow. He did his Master of Engineering in Environmental Engineering from Rani Durgawati University, Jabalpur. He has work experience of more than 30 years in the EIA and other environmental studies of industries, industrial hygiene, urban air pollution, and indoor air quality. Altaf has 30 publications in SCI journals and supervised 31 M.Tech./ M.Sc students.

## Session 5B: Biological Waste Treatment

Moderator 1:

**Dr Sunita Varjani**

Scientific Officer

Gujarat Pollution Control Board

Gandhinagar 382010, Gujarat

Email: drsvs18@gmail.com



Dr Sunita Varjani is Scientific Officer at Gujarat Pollution Control Board, Gandhinagar, Gujarat, India. Her primary research areas are Industrial and environmental biotechnology, Wastewater treatment & process engineering, Bioprocess technology, and waste management. She has worked as visiting scientist at EPFL, Lausanne, Switzerland. She has been enlisted as a highly cited researcher (Top 2% in the World), Elsevier Citation Report (2021). Dr Varjani has authored more than 340 publications, including research and review papers, books, book chapters, and conference communications. She is a Management Council Member of the BRSI and Executive Committee Member of the International Society for Energy, Environment and Sustainability.

Moderator 2:

**Prof Bin Gao**

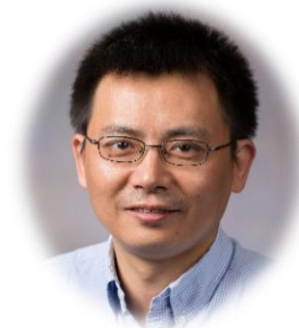
Professor

Department of Agricultural & Biological Engineering

University of Florida

Florida 32611

Email: bg55@ufl.edu



Bin Gao is a professor in the Department of Agricultural and Biological Engineering at the University of Florida. Prior to this, he was a research associate at Cornell University and a postdoctoral research associate at Yale University. He earned his PhD in Environmental Engineering at Cornell University. His BS Chemistry and MS Environmental Chemistry degrees were received from Nanjing University. Prof Gao's research mainly focuses on biochar technology, environmental nanotechnology, and contaminant fate and transport. He has an extensive list of publications in the field of environmental science and engineering.



Panelist 1:

**Prof Meisam Tabatabaei**

Professor

Institute of Tropical Aquaculture and Fisheries (AKUATROP)

Universiti Malaysia Terengganu

Terengganu- 21300, Malaysia

Email: [meisam.tabatabaei@umt.edu.my](mailto:meisam.tabatabaei@umt.edu.my)



Meisam Tabatabaei is a Professor of Environmental Biotechnology (Universiti Malaysia Terengganu, Malaysia) and is the Founding Editor-in-Chief of Biofuel Research Journal. Prof Tabatabaei has been working closely with the UNDP to promote waste-oriented biofuels. Since 2016, he has been the lead collaborator of the Lancet Countdown on Health and Climate Change (UCL, UK). Prof Tabatabaei has published over 300 publications. He is currently also a Visiting Professor at Henan Agricultural University (China) and holds the Global Ambassador position at the University of Saskatchewan (Canada). Dr Tabatabaei is listed on the Clarivate's Highly Cited Researchers 2021 List (Top 0.1% scientists in the world) in Engineering.

Panelist 2:

**Prof Roberto Parra Saldivar**

School of Engineering and Sciences

Tecnologico de Monterrey

Maxico-264849

Email: [r.parra@tec.mx](mailto:r.parra@tec.mx)



Prof Roberto Parra-Saldivar obtained his PhD in biotechnology from Cranfield University, UK. In 2005, he was contracted in an FP6 EU-funded project (SOPHIED) as a postdoc at Westminster University, London, UK. From 2017 to 2018, he was a visiting professor at Massachusetts Institute of Technology, Harvard University, and Brigham Women Hospital in Boston, USA. He joined the Tecnológico de Monterrey in 2009, and he is the leader of Applied Sustainable Biotechnology. He has published more than 250 articles in scientific journals with strict and high impact arbitration and has more than 6600 citations, H-index 42.

Panelist 3:

**Prof Indu Shekhar Thakur**

Professor & Director,  
Amity School of Earth & Environment Science  
Amity University  
Haryana- 122413, India  
Email: [isthakur@hotmail.com](mailto:isthakur@hotmail.com)



Prof Indu Shekhar Thakur, FNASc, FNAAS, FIBA, FBRS, FNAES, FISEES, graduated and served at Jawaharlal Nehru University, New Delhi. He is working on research areas of bioremediation, biovalorization, and detoxification of natural and organic compounds, developed bacterial consortium by genetic breeding, characterized genes and proteins, proteomics, genomics analysis for Green House Gases sequestration for biomass, enzymes, biodiesel, bioflocculant, bioplastic, biomaterials. Biocomposite materials synthesized by enzymes adsorbed on calcite of CO<sub>2</sub> sequestering bacteria for chromate, arsenite, heavy metals removal. Degradation of pentachlorophenol in the tannery, lignin in pulp and paper mill, melanoidin in the distillery, dioxin-like compounds, ecoestrogens, emerging contaminants in solid sludge, landfill leachates, pesticides in the agriculture field, and recovery of nitrogen and phosphorus in wastewater performed. He published more than 250 research papers in peer-reviewed journals, chapters in books, two textbooks, four patents, and technologies. He is a member of the editorial board and reviewing committee of several journals. He completed 22 research projects as PI, 30 Ph.D., 2 M.Phil, and 14 Post Graduate thesis/dissertations are completed under his supervision, included in the list of the world ranking of top 2% scientists (rank 503).

Panelist 4:

**Prof Fang Wang**

Institute of Soil Science  
Chinese Academy of Sciences  
Nanjing 210008, China  
Email: [wangfang@issas.ac.cn](mailto:wangfang@issas.ac.cn)



Dr Fang Wang is a Professor at the Institute of Soil Science, the Chinese Academy of Sciences, and the University of Chinese Academy of Sciences. Her research focuses on soil pollution and remediation (POPs and emerging contaminants). She was awarded the “Alexander von Humboldt Research Fellow for Experienced Researchers” from Germany and the “Distinguished Young Scholars” from the Natural Science Foundation of Jiangsu Province of China. She is the author of 115 peer-reviewed international journal articles. She serves as an Associate Editor of the Science of the Total Environment and an Academic Editor of the Innovation. She is the Chair of the International Collaboration Committee of Soil Science Society of China and serves as a Consultant for International Atomic Energy Agency.



Panelist 5:

**Prof Nanthi Bolan**

Department of Soil Science  
University of Western Australia  
Crawley WA 6009, Australia  
Email: [Nanthi.Bolan@uwa.edu.au](mailto:Nanthi.Bolan@uwa.edu.au)



Dr Nanthi Bolan is a Professor of Soil Science, and his teaching and research interests include soil health, soil contamination, greenhouse gas emission, and soil remediation. Prof Nanthi is a Fellow of American Soil Science Society, American Society of Agronomy, and New Zealand Soil Science Society and was awarded the Communicator of the Year award by the New Zealand Institute of Agricultural Sciences. He has supervised more than 60 postgraduate students and was awarded the Massey University Research Medal for excellence in postgraduate students' supervision. He has published more than 450 book chapters and journal papers and is one of the Web of Science Highly cited researchers for 2018, 2019, 2020, and 2021.

Panelist 6:

**Dr Preeti Chaturvedi**

Senior Scientist  
CSIR-Indian Institute of Toxicology Research, Lucknow  
Lucknow 226001, India  
Email: [preetichaturvedi@iitr.res.in](mailto:preetichaturvedi@iitr.res.in)



Dr Preeti Chaturvedi is working as a Senior Scientist in CSIR-Indian Institute of Toxicology Research, Lucknow, Uttar Pradesh, India. Her primary research areas include Bioremediation, Toxicity assessment, Metagenomics, Microbial biotechnology, and Proteomics. She has published more than 45 research/review papers and 5 book chapters. Her laboratory is NABL accredited and involved in mega-projects funded by the National Mission for Clean Ganga, Ministry of Jal Shakti, Govt. of India. She is a gazetted member of the State Ganga committee, Uttar Pradesh, and a member of BIS, CPCB, NMCG, SMCG, etc. She was a visiting Professor, EPFL, Lausanne, Switzerland in Sept-Oct 2019; delivered a talk at A&F University, Yangling China, etc. She is a life member of BRSI and AMI. She is also the guest editor for various national journals, including Indian Journal of Experimental Biology (IJEb) and the Journal of Innovation in Applied Research (JIAR).

Panelist 7:

**Prof Sang-Hyoun Kim**

Associate Professor

School of Civil and Environmental Engineering

Yonsei University

Seoul 03722, South Korea

Email: sanghkim@yonsei.ac.kr



Dr Sang-Hyoun Kim is an associate professor in the School of Civil and Environmental Engineering at Yonsei University. His research interests lie in the water-energy-resources nexus, including anaerobic digestion of wastewater and solid waste, biohydrogen production from renewable resources, biopolymer production, and integrated pollution prevention in wastewater treatment. He is an editorial board member of Bioresource technology and a member of the Young Korean Academy of Science and Technology.

## Session 6B: Thermochemical Processes for Biomass

Moderator 1:

**Prof Vinod Kumar Garg**

Department of Environmental Science and Technology

Central University of Punjab

Bathinda, India

Email: vinodkgarg@yahoo.com



Prof Vinod Kumar Garg is presently working at the Department of Environmental Science and Technology, Central University of Punjab, India. He is a well-rounded researcher with more than 30 years of experience in leading, supervising, and undertaking research in the field of water and wastewater management, solid and hazardous Waste Management. He and his research group are working on Water and Wastewater pollution monitoring and abatement, Solid waste management, Pesticide degradation, radioecology, and Heavy Metal detoxification. He has published more than 200 research and review articles, 22 proceedings, and six editorials in peer-reviewed International and National journals of repute with more than 15000 citations and 65 h-index. In addition, he has published 2 books and 12 book chapters and completed ten sponsored research projects as Principal Investigator funded by various agencies and departments. He was awarded “Thomson Reuters Research Excellence – India Citation Awards 2012”. He is an active member of various scientific societies and organizations including, the Biotech Research Society of India, the Indian Nuclear Society, etc.

Moderator 2:

**Dr Siming You**

Lecturer

Department of Systems Power & Energy

University of Glasgow

Glasgow, United Kingdom

Email: Siming.You@glasgow.ac.uk



Dr Siming You, Lecturer in the James Watt School of Engineering at the University of Glasgow, UK. He is specialized in the design and analysis of environmental and energy systems which focus on wastewater treatment and waste management systems. Before joining the School, he worked as a Research Fellow at NUS (National University of Singapore) Environmental Research Institute. He also served as a Postdoctoral Fellow at Nanyang Technological University and the Massachusetts Institute of Technology in 2014 and 2015, respectively. Dr You received his PhD in Thermo-fluids from Nanyang Technological University in 2014. He has published over 70 papers in peer-reviewed journals and served as a keynote or invited speaker at ~15 international conferences. Dr You was awarded the Outstanding Young Researcher Award by the American Institute of Chemical Engineers, SLS in 2018.

Panelist 1:

**Prof Baskar Gurunathan**

Department of Biotechnology

St. Joseph's College of Engineering, Chennai

Tamil Nadu 600119, India

Email: basg2004@gmail.com



Prof Baskar Gurunathan is currently working at St. Joseph's College of Engineering, Chennai, India. He has published more than 160 research and review articles in National and International Journals, 22 chapters in edited books, and edited six books. He has delivered several invited lectures and chaired technical sessions in national and international conferences. His current research areas are food toxicology, biofuels and bioenergy, nanocatalysis, therapeutic proteins, microbial enzymes, nanomedicine and bioremediation. He has organized several sponsored workshops and FDPs. He has completed funded projects worth Rs. 60 lakhs. He is an active life member of various national and international professional bodies. He has visited the Swiss Federal Institute of Technology (EFPL), Switzerland, as visiting researcher in November and December 2018. He has received the Outstanding Researcher on Renewable Energy Award from Indian Society for Technical Education, New Delhi in 2016 and Young Scientist Award 2015 from International Bioprocessing Association, France in 2017. He received the 'Prof S B Chincholkar Memorial Award 2019' of the Biotech Research Society, India, for the outstanding work in Biofuels and Food Biotechnology in 2019 and ISTE-Periyar Best Engineering College Teacher award 2020 from the Indian Society for Technical Education-Tamilnadu Section.

Panelist 2:

**Prof Lam Su Shiung**

Department of Chemical Engineering

Universiti Malaysia Terengganu

Malaysia

Email: lam@umt.edu.my



Prof Lam holds a PhD in Chemical Engineering from Cambridge University and is currently a Professor of the Institute of Tropical Aquaculture and Fisheries of Universiti Malaysia Terengganu. He serves as Editor of Environmental Pollution and Associate Editor for Reviews of Environmental Contamination and Toxicology, Environmental Advances, Environmental Geochemistry, and Health. He leads a research group working mainly on Waste and Biomass Utilization, Waste and Wastewater Treatment, Green Technology, and Pollution Mitigation. He is active in research on the application of pyrolysis and microwave heating in transforming waste and biomass into green energy and products applicable to industry and environmental protection.

Panelist 3:

**Prof Young-Kwon Park**

Department of Chemical Engineering

University of Seoul, South Korea

Email: lam@umt.edu.my



Prof Young-Kwon Park received his B.S., M.S., and PhD from the Chemical Engineering of Korea Advanced Institute of Science and Technology in 1992, 1994, and 1999, respectively. Then Prof Park worked at the Industrial Technology Institute of Hyundai Heavy Industries as a senior researcher. Since 2002, Prof Park has been employed as a Professor in the School of Environmental Engineering of the University of Seoul, Korea. His current research interests include the production of valuable materials or renewable fuel via catalytic pyrolysis/gasification of biomass and organic wastes. Prof Park has published more than 500 journal articles.

Panelist 4:

**Prof Richa Kothari**

Associate Professor

Department of Environmental Sciences

Central University of Jammu

Jammu 181143, India

Email: richakothari786@gmail.com



Dr Richa Kothari has more than 15 years of teaching and research experience. She has been actively involved in research in the areas of algal-based biofuel production, bio-hydrogen production, and utilization of renewable energy for wastewater treatment. She is also a recipient of prestigious research fellowship from the Ministry of New and Renewable Energy (MNRE) and Council of Scientific and Industrial Research (CSIR). Dr Kothari has published more than 100 research papers and book chapters in reputed international peer-reviewed (SCI/Scopus) journals with high impact factors. She has more than 3500 citations with h-index 24 and i-10 index 40. She is also the editorial board member for well-reputed SCI/Scopus journals. She has delivered several keynote/invited lectures in different countries (Malaysia, South Africa, the USA, and India).

Panelist 5:

**Dr Eldon R. Rene**

Senior Lecturer

Resource Recovery Technology

IHE Delft Institute for Water Education

The Netherlands 2601

Email: e.raj@un-ihe.org



Dr Eldon R. Rene is currently working as a Senior Lecturer at IHE Delft Institute for Water Education, Netherlands. He obtained his University Teaching Qualification (UTQ) diploma from IHE Delft and a PhD in Chemical Engineering from the Indian Institute of Technology Madras (India). Eldon's broad research interests are related to developing resilient biological treatment processes for waste-gas and wastewater treatment, the development of waste-to-energy conversion technologies, and the use of artificial intelligence tools for environmental monitoring and environmental process control. As a part of his educational and capacity-building efforts, Eldon has taught scientific writing and skill development to more than 4500 MS and PhD students in major international events or workshops/conferences. He has published more than 275 research/review papers in scientific journals, 30 book chapters, 4 books in Elsevier/Springer, and ~120 oral presentations at international conferences, with an *h*-index of 35.

Panelist 6:

**Dr S. Saravanamurugan**

Scientist-E

Innovative and Applied Bioprocessing (CIAB)

Mohali 140306, India

Email: srsaravana78@gmail.com



Dr S. Saravanamurugan is currently a Scientist-E at the Center of Innovative and Applied Bioprocessing (CIAB), Mohali, India, since 2016. He obtained his PhD in the field of heterogeneous catalysis from Anna University, India. He worked as a research scientist/post-doctoral fellow in KAIST/ Inha University, South Korea. He worked as a Post-doctoral Fellow and Senior Researcher at the Centre for Catalysis and Sustainable Chemistry, Technical University of Denmark (DTU), Denmark, for more than eight years between 2008 and 2016. His main research topics include biomass transformation with zeolite/zeotype and mixed oxide catalysts. He has published more than 75 peer-reviewed publications and nine patents filed/granted with more than 4400 citations (h-Index 31). He received a DST-DAAD Fellowship during his doctoral studies and the Early Career Research Award (SERB-DST) in 2017. He is a visiting professor at Guizhou University, China, and an adjunct Associate Professor of the Regional Centre for Biotechnology, Faridabad. Notably, he has been elected as a Fellow of the Royal Society of Chemistry (FRSC), London, UK, in 2021.



Panelist 7:

**Prof Ashokkumar Veeramuthu**

Research Professor

Department of Aeronautics and Astronautics

National Cheng Kung University

Tainan 701, Taiwan

Email: [rvashok2008@gmail.com](mailto:rvashok2008@gmail.com)



Dr Ashokkumar Veeramuthu received his PhD from the University of Madras, Chennai, India, in 2014. During his PhD, he was awarded an Indo-Australian fellowship and visited Adelaide University, Australia as a visiting scientist. He received his M. Phil & M.Sc. degrees in Plant Biotechnology from Indian universities. Currently, he is working in the Department of Chemical Technology, Chulalongkorn University, Bangkok, Thailand. He worked as a Postdoctoral Scientist in Microalgal Biorefinery at the Department of Mechanical Engineering, University Technology Malaysia (UTM), Malaysia. Also, he worked as a Postdoctoral Researcher at the Department of Aeronautics and Astronautics, National Cheng Kung University, Taiwan. He has more than 13 years of research experience in the field of Energy and Environment at both the academic and industrial levels. He also extensively worked on biomass thermochemical techniques, torrefaction, and biochar synthesis, bio-jet fuels, and metallic iron production. Dr Ashokkumar is also expertise in biofuels, biorefinery, wastewater treatment using microalgae, CO<sub>2</sub> sequestration, and value-added bio-products. He serves as the Managing Guest Editor/Guest editor in Elsevier journals such as Fuel (IF 6.6), Journal of Biotechnology (IF-3.52), Environmental Technology and Innovation (IF-5.2)), and Springer journals (IF-5.4). Besides, he also served as an associate editor and editorial board member in scientific journals. He is an active member of the World Bioenergy Association and other scientific societies. Dr Ashokkumar has published more than 75 peer-reviewed international journal articles and three book chapters. He is an active reviewer for many high-impact journals published by Elsevier, Springer Nature, RSC, and ACS.

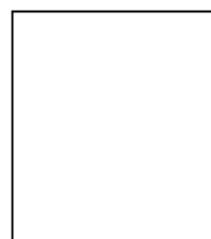


# **ISEES Membership Form**

# International Society for Energy, Environment & Sustainability



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**Mailing Address:** Dr. Avinash Kumar Agarwal  
 Department of Mechanical Engineering, IIT Kanpur  
 Kanpur 208016, UP, India  
 08765599882 (Sujeet)  
 Email: [akag@iitk.ac.in](mailto:akag@iitk.ac.in)

*Note: Attach a Demand Draft & a self-attested copy of your ID proof along with the duly filled and signed form.*

# **Technical Schedule of VI-SEEC**

## Technical Schedule at a Glance

27 <sup>th</sup> December 2021		
11:30 AM-12:00 PM	Assembly and Informal Discussion	
12:00 PM-01:00 PM	Lunch	
01:00-03:30 PM	Session 1A: Fuels for Sustainable Transport Session Moderators: Prof Dilip Sharma/ Dr Atul Dhar	Session 1B: Challenges for Desalination and Wastewater Treatment and Possible Solutions Session Moderators: Dr Swatantra P. Singh/ Dr S Venkat Mohan
03:30-04:00 PM	High Tea	
04:00-06:30 PM	Session 2A: Engine Combustion Modelling, Simulation and Sprays Session Moderators: Dr Pravesh C Shukla/ Dr Gabriele Di Blasio	Session 2B: Bioenergy/biofuels Session Moderators: Prof Vijay S. Moholkar/ Prof Ravindran Balasubramani
06:30-07:30 PM	General Body Meeting of ISEES (Members Only)	
07:30 PM onwards	Dinner	
28 <sup>th</sup> December 2021		
09:00-09:45 AM	Plenary Talk-1	
09:45-10:15 AM	Tea Break	
10.15 AM-12:45 PM	Session 3A: Coal Biomass Combustion for Power Generation Session Moderators: Prof Swarnendu Sen/ Dr Aditya Saurabh	Session 3B: Microbial Processes and Products Session Moderators: Prof Parmjit S Panesar/ Prof Samir Khanal
12:45-01:30 PM	Lunch	
01:30-04:00 PM	Session 4A: Future of IC Engine Technology and Roadmap Session Moderators: Prof Raja Banerjee/ Dr Dhananjay Srivastava	Session 4B: Air Pollution and Climate Change: Sustainable Approaches Session Moderators: Dr Nitin Labhsetwar/ Dr Piyali Das
04:00-04:30 PM	High Tea	
04:30-05:15 PM	Plenary Talk 2: Dr V K. Sarawat, Hon. Member (S & T), NITI Ayog	
05:15-05:45 PM	Book Launch Ceremony	
05:45-06:30 PM	ISEES Award Ceremony	
06:30-07:15 PM	ISEES Fellow Induction Ceremony	
07:15-07:30 PM	Introduction to A2K+ program by DSIR	
07:30-07:45 PM	Award Ceremony Closure	
07:45-10:00 PM	Conference Banquet	
29 <sup>th</sup> December 2021		
09:00-11:30 AM	Session 5A: Sustainable Energy from Carbon Neutral Sources Session Moderators: Dr Himanshu Tyagi/ Dr Balkrishna Mehta	Session 5B: Biological Waste Treatment Session Moderators: Dr Sunita Varjani/ Prof Bin Gao
11:30 AM-01:00 PM	Lunch	
01.00-03:30 PM	Session 6A: Combustion: Emerging Paradigm Session Moderators: Prof Sudarshan Kumar/ Prof Bhupendra Khandelwa	Session 6B: Thermochemical Processes for Biomass Session Moderators: Prof Vinod. K. Garg/ Prof Siming You
03:30-04:30 PM	High tea	
04:30-05:00 PM	Valedictory Session	

## Technical Schedule for Contributed Papers

27 <sup>th</sup> December 2021						
01:00 pm to 03:30 pm	<b>Session 1A</b> <b>Fuels for Sustainable Transport</b> <b>Session Moderators:</b> Prof. Dilip Sharma/ Dr. Atul Dhar			<b>Session 1B</b> <b>Challenges for Desalination and Wastewater Treatment and Possible Solutions</b> <b>Session Moderators:</b> Dr. Swatantra P. Singh/ Dr. S Venkat Mohan		
	<b>Contribute Papers</b>			<b>Contribute Papers</b>		
	<b>Paper No.</b>	<b>Authors</b>	<b>Title</b>	<b>Paper No.</b>	<b>Authors</b>	<b>Title</b>
	1	Vikram Kumar and Avinash Kumar Agarwal	Emission Characteristics of Methanol Fuelled Genset Engine	63	Roop Singh Sinsinwar and Munna Verma	Sludge Removal in Water Treatment Plant and Impact on the Environment
	4	Hardikk Valera and Avinash Kumar Agarwal	Identification of Suitable Octane Enhancer Fueling (M15 Or E15) for Two-Wheeler Segment	85	Nandini Dixit, Akhila M. Nair and Swatantra P. Singh	Antibacterial Surface-Modified Polyethersulfone (PES) Membranes-based Laser-Induced Graphene (LIG)
	5	Utkarsha Sonawane and Avinash Kumar Agarwal	Particulate Characterization of Gasohol Fueled Medium-Duty Spark-Ignition Engine	88	Kritika Jashrapuria and Swatantra Pratap Singh	Graphene-Based Nanomaterials: A Promising Tool In Biofouling Control
	6	Ankur Kalwar and Avinash Kumar Agarwal	Detailed Engine Characterization Study for Influence of Di-Ethyl Ether (DEE) Addition in Heavy-Duty Tractor Engine	89	Najmul Haque Barbhuiya and Swatantra P. Singh	Laser-Induced Graphene-Based Electroconductive Filters and Composites for the Removal of Pharmaceutical Compounds
	13	Ayush Tripathi and Avinash Kumar Agarwal	Experimental Investigation of Di-Methyl Ether (DME) Utilization in Genset Engine	90	Vikram Wanjari, Siddhartha Duttagupta and Swatantra Pratap Singh	Biosensors for the detection of Environmental Contaminants
	81	Vikas Kumar Sahu, Pradhi Rajeev, Pratibha Vishwakarma, Pravesh Chandra Shukla and Tarun Gupta	Toxicity Equivalent Factor Evaluation of PAH Emissions in a CI Engine fueled with Methanol, Ethanol, Butanol blended Diesel	95	Sudharshan Reddy and Swatantra Pratap Singh	Enhancing properties of poly (vinylidene fluoride) membranes for water treatment applications via non-solvent induced phase inversion method
97	Paramvir Singh, Vishal Patil, Sachin Sonage and Sudarshan Kumar	Experimental Investigation Surrogate Fuel with Conventional Gasoline Powered in Spark Ignition Engine	102	Utkarsh Misra, Najmul Haque Barbhuiya and Swatantra Pratap Singh	New generation LIG-PES based composite membranes for energy-efficient desalination and water treatment	

27<sup>th</sup> December 2021

04:00 pm to 06:30 pm	<b>Session 2A</b> <b>Engine Combustion Modelling, Simulation and Sprays</b> <b>Session Moderators:</b> Dr. Pravesh C Shukla/ Dr. Gabriele Di Blasio			<b>Session 2B</b> <b>Bioenergy/biofuels</b> <b>Session Moderators:</b> Prof. Vijay S. Moholkar/ Prof. Ravindran Balasubramani		
	<b>Contribute Papers</b>			<b>Contribute Papers</b>		
	<b>Paper No.</b>	<b>Authors</b>	<b>Title</b>	<b>Paper No.</b>	<b>Authors</b>	<b>Title</b>
	3	Dhananjay Kumar and Avinash Kumar Agarwal	3D Modeling of Co-Axial Injector for Direct Injection of Methanol in Large Bore Engine	71	Premeshworii Devi Maibam and Arun Goyal	Modeling and optimization of rice-straw delignification by deep eutectic solvent for the production of bio-fuel feedstock using RSM-CCD approach
	7	Ashutosh Jena and Avinash Kumar Agarwal	Numerical Investigation of Mixture Stratification and Combustion in GCI with Narrow-Angle Direct Injection (NADI)	98	Ravneet Kaur, Poonam Gera, Mithilesh Kumar Jha and Thallada Bhaskar	Alkali pretreatment and hydrothermal liquefaction of castor residue for bio-oil production
	11	Rahul Kumar Singh, Ankur Kalwar and Avinash Kumar Agarwal	Assessment of M15 Fueled BS-VI SI Engine for Passenger Car	110	Purtika Nagia, Avinash Thakur and Gulshan Kumar Jawa	Studies on Dynamic Stability of Green Emulsion Liquid Membrane using Ionic Liquid and Nanoparticle
	12	Avinash Kumar Agarwal, Harsimran Singh and Krishnamoorthi M	Potential of Bathtub Piston Geometry in reducing HC and CO Emissions from Gasoline Compression Ignition Engine	124	Rahul Gautam and Shunmugavel Saravanamurugan	Transformation of Glucose to Fructose with Modified Zeolites
	73	Rohit Kumar and Sudarshan Kumar	Laminar Burning Velocity Measurements of Surrogate Fuels At Elevated Temperatures	126	Javvadi Yamini and Dr. S Venkata Mohan	Surveillance of Antibiotic Resistance Genes (ARGs)/Bacteria (ARB) in Urban lakes
	116	Krishna Kant, Santhosh Kumar Keerthi and R Banerjee	Air Assisted Liquid Sheet Breakup in Twin Fluid Atomizers			
	125	Nasir Attar, Arun Pattanashetti, Shivansh Chaturvedi and Santhosh R	Simulation and analysis of coaxial swirling jet flow field			
	127	Vivek K, Kundan Kumar Singh, Aditya Saurabh and Lipika Kabiraj	Impinging Jet Atomization of Newtonian and non-Newtonian fluids			

	128	Vivek K, Tikaram, Kalyani Agarwal, Neelkanth Nirmalkar and Lipika Kabiraj	Impinging jet atomization of nanobubble-water solution	
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28 <sup>th</sup> December 2021						
10:15 am to 12:45 pm	<b>Session 3A</b> <b>Coal Biomass Combustion for Power Generation</b> <b>Session Moderators:</b> Prof. Swarnendu Sen/ Dr. Aditya Saurabh		<b>Session 3B</b> <b>Microbial Processes and Products</b> <b>Session Moderators:</b> Prof. Parmjit S Panesar/ Prof. Samir Khanal			
	<b>Contribute Papers</b>		<b>Contribute Papers</b>			
	<b>Paper No.</b>	<b>Authors</b>	<b>Title</b>	<b>Paper No.</b>	<b>Authors</b>	<b>Title</b>
	101	Ayush Kumar Pandey and Onkar Singh	Parametric study of combined solar and biomass-based power and hydrogen generation system	62	Karan Kumar and Vijayanand S. Moholkar	Theoretical studies to understand the inhibition mechanism of alcohol/aldehyde dehydrogenase due to inhibitors present in hydrolysates from lignocellulosic biomass
	113	Inderpal Singh, Atul Dhar and Parmod Kumar	Exploration of Organic Rankine Cycle Technology for Low-Temperature Waste Heat Recovery from Engines	76	Shristee Gupta, Ramakrishnan Parthasarathi and Sushmita Tiwari	Lignin-based bio-sorbent for the treatment of textile effluent
	117	Prof. Yogesh Chandra Sharma and Siddhi Jaiswal	Valorization of biodiesel derived glycerol for the production of glycerol carbonate assisted by heterogeneous catalyst	77	Sushmita Tiwari, Shristee Gupta, Aditya Kumar, Devendra Kumar Patel and Ramakrishnan Parthasarathi	Green synthetic approach for bioadsorbent development: Lignin based adsorbent for Hg (II) removal from industrial effluent
	120	Hemant Bherwani, Tushar Indorkar and Amol Niwalkar	Ensuring Green Energy Transition using Circular Economy Framework: A Case Study for Delhi	86	Akhila M. Nair, Ashish Kumar and Swatantra P. Singh	Electrochemical Disinfection Performance of Metal Doped Nanomaterials for Virus Inactivation
	129	Aditi Parihar and Shruti Patnaik	Assessment of Noise Pollution Level: A case study of Mumbai, India	87	Mitil Koli and Swatantra Singh	Symmetric Membranes: A new approach in membrane technology
			138	Manupati Hemalatha, Athmakuri Tharak, Harishankar Kopperi, Uday Kiran, C.G. Gokulan, Santosh Kumar Kuncha,	Long term Surveillance for SARS-CoV-2 – Wastewater Based Epidemiological Studies	



			Rakesh. K Mishra and S Venkata Mohan	
		139	Manvita Vadrevu, Santhosh J, Harishankar Kopperi, Ravi Kiran Boda, Asutoshsinh Kaushik and Venkata Mohan	Sustainable Strategy for Treatment of Composite Dye wastewater of Village based Handloom Cluster

28 <sup>th</sup> December 2021						
01:45 pm to 04:15 pm	Session 4A <b>Future of IC Engine Technology and Roadmap</b> Session Moderators: Prof. Raja Banerjee/ Dr. Dhananjay Srivastava			Session 4B <b>Air Pollution and Climate Change: Sustainable Approaches</b> Session Moderators: Dr. Nitin Labhsetwar/ Dr. Piyali Das		
	Contribute Papers			Contribute Papers		
	Paper No.	Authors	Title	Paper No.	Authors	Title
	2	M. Krishnamoorthi and Avinash Kumar Agarwal	Effect of Injection Strategies on Combustion and Emission Characteristics of Gasoline Compression Ignition (GCI) mode Engine	66	Aman Gupta, Vivek Srivastava, Amit Singh and Tarun Gupta	Seasonal trends in Bioaerosol load in different microenvironments in IIT Kanpur
	8	Sam Joe Chintagunti and Avinash Kumar Agarwal	Effect of Injection Pressure and Ambient Conditions on Combustion and Emission Formation in Methanol -Diesel Dual-Fuel RCCI Conditions	83	Adnan Qadri, Amit Kumar Singh and Tarun Gupta	Temporal trends and characterization of Biomass Burning in the Indo Gangetic Plains and North-eastern Region of India using Satellite Based Observations
	10	Shanti Mehra and Avinash Kumar Agarwal	Development of Ultra-Clean DME Fueled Tractor for Agricultural Applications	103	Rohit Dalal, Sunit Kumar Singh, Roshan Wathore and Nitin Labhasetwar	Process Simulation of Different Hydrogen Production Methods via Methane Reforming: A Comparative Energy Analysis
	15	Deepak Kumar and Avinash Kumar Agarwal	Total Cost of Ownership study of 2-wheelers and 4-wheelers in India	121	Hemant Bherwani and Dhanya Balachandran	Valuing environmental externalities for mitigation of climate change impacts and promoting sustainability
16	Prashant Pathak and Avinash Kumar Agarwal	Effect of Post Injection of Diesel in Diesel Genset Engine with Methanol Port Injection, Effect of EGR in Diesel Genset Engine with	122	Hemant Bherwani and Amol Niwalkar	Monetary Quantification and Benefits Mapping of Mangroves of Andamans	

			Methanol Port Injection			
	82	Mandeep Singh, Alok Singh, Satsimran Singh and Sarbjot Singh Sandhu	An Attempt to reduce the NOx emissions by varying the boost pressure of CRDI engine fueled with 20% blending of argemone biodiesel			
	104	Prajakta Ramteke, Sunit Kumar Singh and Nitin Kumar Labhasetwar	Efficient Soot Oxidation by Mixed Metal Oxide Catalysts and their Application in Diesel Emission Control After-Treatment Devices			
	130	M. Nikhil Mathew, Inderpal Singh and Atul Dhar	Effect of exhaust heat recovered on onboard generation of HHO gas and its implications on the constituent emissions			

29 <sup>th</sup> December 2021						
09:00 am to 11:30 am	<b>Session 5A</b> <b>Sustainable Energy from Carbon Neutral Sources</b> <b>Session Moderators:</b> Dr. Himanshu Tyagi/ Dr. Balkrishna Mehta			<b>Session 5B</b> <b>Biological Waste Treatment</b> <b>Session Moderators:</b> Dr. Sunita Varjani/ Prof. Bin Gao		
	<b>Contribute Papers</b>			<b>Contribute Papers</b>		
	<b>Paper No.</b>	<b>Authors</b>	<b>Title</b>	<b>Paper No.</b>	<b>Authors</b>	<b>Title</b>
	74	Abhinav Rajan and K. S. Reddy	Optical modeling of solar parabolic dish collector coupled with conical cavity receiver	67	Nitin Choudhary, Puneeta Pandey and V.K. Garg	Nature and Extent of Unauthorised Waste Dump Sites in Bathinda City, Punjab, India
	78	Ravi Raj and Prabha Chand	A review on the application of phase change materials to enhance thermal comfort of buildings	75	Divyani Panwar, Parmjit S. Panesar and Harish K. Chopra	Extraction and characterization of pectin from citrus by-products using microwave extraction technology
	99	Prashant Saini, Dr. Atul Dhar and Dr. Satvasheel Ramesh Powar	The Performance Evaluation of a Parabolic Trough Collector with an Internal Triangular Helical Wire Coil Flow Insert Using Different Working Fluids	84	Yumnam Robinson Singh, Abhijeet Thakur, Carlos M. G. A. Fontes and Arun Goyal	Expression, purification and biochemical characterization of a recombinant putative glucuronoxylanase (CcGH30A) from <i>Clostridium clariflavum</i>
	133	Akshayveer Akshayveer, Amit Kumar, Ajeet Pratap Singh and	Effect of overhead-type rectangular PCM enclosure on thermo-electric performance of PV/PCM module	92	Dhanya Ms and Ritu Kamboj	Butanol production from Potato peel waste with <i>Clostridium acetobutylicum</i> immobilized on cotton cake

		Om Prakash Singh				
	140	Amit Kumar, Akashayveer, Ajeet Pratap Singh and O.P Singh	Performance enhancement of a curve solar air heater by using phase change material	105	Hemant Thakur, Atul Dhar and Satvasheel Powar	Biomethane production from co-digestion of food waste and bio flocculated sewerage sludge in CSTR
				112	Anil Kumar, Avinash Thakur and Parmjit Singh Panesar	Optimization of Chromium (VI) Removal through Environmentally Benign Green Emulsion Liquid Membrane using Response Surface Methodology
				131	Reena Rooban and Binod Parameswaran	Production of citric acid using agro-industrial waste
				134	Maria Paul Alphy and Parameswaran Binod	Evaluation of different fermentation strategies for the production of 1,3-propanediol and organic acids by an adaptively evolved strain of <i>Lacobacillus brevis</i> N1E9.3.3

29 <sup>th</sup> December 2021						
1:00 pm to 03:30 pm	<b>Session 6A</b> <b>Combustion: Emerging Paradigm</b> <b>Session Moderators:</b> Prof. Sudarshan Kumar/ Prof. Bhupendra Khandelwal			<b>Session 6B</b> <b>Thermochemical Processes for Biomass</b> <b>Session Moderators:</b> Prof. Vinod. K. Garg/ Prof. Siming You		
	<b>Contribute Papers</b>			<b>Contribute Papers</b>		
	<b>Paper No.</b>	<b>Authors</b>	<b>Title</b>	<b>Paper No.</b>	<b>Authors</b>	<b>Title</b>
	14	Aaishi Ashirbad and Avinash Kumar Agarwal	Development of Constant Volume Combustion Chamber to study Laser-Ignited Gasoline-Direct Injection Spray	68	Dipak Das, Parmjit S. Panesar and Charanjiv S. Saini	Characterization of soybean meal protein isolate extracted through ultrasound treatment
	69	Anand Singh, Mahendra Reddy and Sukanta Dash	Chemical Kinetic analysis of NH <sub>3</sub> /CH <sub>4</sub> – O <sub>2</sub> /N <sub>2</sub> / H <sub>2</sub> O <sub>2</sub> Mixture to Evaluate the Feasibility for Air Replacement with H <sub>2</sub> O <sub>2</sub>	96	Deepak Singh, Dhananjay Singh, Suresh Kumar Patel, Balendu Shekhar Giri and Sunita Varjani	Investigation of the performance of a solar dryer integrated with PVT hybrid system for food preservation
	70	Debojit Sharma, Sukanta Kumar Dash and Mahendra	Exergy Analysis on Excess Enthalpy Combustion of LPG+ H <sub>2</sub> / air mixture in an Ultra-High Intensity Meso-scale Combustor	114	Jitendra Singh and Soumen Kumar Maiti	Consolidated bioprocessing of sugarcane bagasse feedstock for bioethanol production using coculture of <i>Saccharomyces</i>

		Reddy Vanteru				cerevisiae and Pichia stipitis
	72	Subrat Garnayak, Sukanta K. Dash and V. Mahendra Reddy	Effect of N <sub>2</sub> , CO <sub>2</sub> , and H <sub>2</sub> O Dilution on MILD Combustion of CH <sub>4</sub> /H <sub>2</sub> Flame with Extremely Low Oxygen Content	115	Monika Thakur, Sudhir Singh and Monika Thakur	Utilization of potato peel for extraction of starch and enzymatic biosynthesis of resistant starch
	79	Shawnam Shawnam, Pragya Berwal and Sudarshan Kumar	Measurement of Laminar Burning Velocities of CH <sub>4</sub> /H <sub>2</sub> /NH <sub>3</sub> Fuel Mixture at Elevated Temperatures	119	Santanu Basak	Sustainable flame retardant natural fibre textiles made using extracts of plant waste bio-macromolecules
	80	Upasana Priyadarshani Padhi, Nilay Dorlikar and Sudarshan Kumar	Measurement of laminar burning velocity of toluene-air mixtures at elevated temperatures	123	Saurabh Gupta, Sukhwinder Kaur, Harpal Singh and Rupinder Pal Singh	Screening and Isolation of Potential Biosurfactant Producing Bacterial Strain of Alcaligenes SS-1
	118	Akshat Jain, Anirudha Ambekar and Thaseem Thajudeen	Stability of Nanofuel Suspension and Mitigation of Particulate Emissions from the Combustion of Liquid Fuels	141	Poonam Kumari, Manupati Hemalatha, Ranaprathap Katakajwala and S Venkata Mohan	Algae-based Bioplastics - Mixotrophic Production and Life Cycle Analysis
	143	Anuj Kumar, Krishna Chaitan Marthi, Santanu De	Numerical investigation of differential diffusion in a laminar, H <sub>2</sub> /N <sub>2</sub> diffusion flame			
	144	Eshan Sharma and Santanu De	Large-eddy Simulations of Auto-igniting Methane Flames			



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