



## Indo-French Workshop on Clean and Sustainable Energy Technologies (INFINITE)

21-24 February 2023

Venue: CSIR - National Physical Laboratory, New Delhi, India

Jointly organized by

CSIR-Central Institute of Mining and Fuel  
Research, Dhanbad

Centre National de la Recherche Scientifique  
– CNRS, France

### PROGRAM SCHEDULE

#### Day 1, Tuesday 21<sup>st</sup> February 2023

17:00 - 18:00	<b>Registration</b>
	<b>Inaugural Session</b>
18:00 – 18:05	Welcoming the Dignitaries to the dias
18:05 – 18:10	Lighting of the lamp
18:10 – 18:15	Welcome address, Prof. Venugopal Achanta, Director, CSIR – NPL, New Delhi
18:15 – 18:20	Opening Remarks, Prof. Arvind K Mishra, Director, CSIR - CIMFR, Dhanbad India
18:20 – 18:25	About the workshop, Dr. Abdelilah Slaoui, Deputy Research Director in charge of Energy, CNRS, Paris, (French Coordinator)
18:25 – 18:45	<b><u>Inaugural Address</u></b> Dr. (Mrs) N. Kalaiselvi, Director General, CSIR & Secretary DSIR, Government of India Pr. Antoine Petit, CEO, Centre National de la Recherche Scientifique – CNRS, France
18:45 – 19:00	Keynote address by the Chief Guest, Dr. S. Chandrasekhar, Secretary, Department of Science and Technology (DST), Government of India
19:00 – 19:05	Release of workshop abstract booklet
19:05 – 19:10	Felicitation of Chief Guest and Dignitaries
19:10 – 19:15	Vote of thanks, Dr. R. Ebhin Masto, Sr. Principal Scientist, CSIR-CIMFR, (Indian Coordinator)
19:15 – 19:20	National Anthem
19:20 – 19:30	<b>Group Photo</b>
19.30 Onwards	<b>Dinner</b>

## Day 2, Wednesday 22<sup>nd</sup> February 2023

9.00– 11.00	<b>Session I – SOLAR ENERGY</b>
<b>Session Chairs</b>	<b>Dr Abdelilah Slaoui, CNRS, Paris</b> <b>Prof. Suddhasatwa Basu, IIT Delhi</b>
Recent Advances in Photovoltaics	Jean-François Guillemoles, CNRS-IPVF, Saclay
Dye-sensitized Solar Cells: Powerhouses for Ambient/Indoor Light Harvesting	Dr Suraj Soman, CSIR-NIIST, Trivandrum
Premium and low carbon footprint wafers, cells and solar modules: an overview of research activities at CEA-INES	Etienne Pihan, CEA-INES, Chambéry
Development of lead-free perovskite solar absorber for solar cell applications	Dr. Ritu Srivastava, CSIR - NPL
Shape controlled Palladium based nanostructures for sustainable electrochemical energy harvesting	Dr. Ujjwal Gautam, IISER Mohali
<b>11.00 – 11.30</b>	<b>Networking Coffee/Tea Break</b>

<b>11.30 – 13.30</b>	<b>Session II – HYDROGEN ENERGY</b> <b>(Parallel Session)</b>
<b>Session Chairs</b>	<b>Dr. Sebastian Peter, JNCASR</b> <b>Dr Laurence CROGUENEC, CNRS</b>
Development of a French hydrogen supply chain	Dr Laurent Antoni, CEA-LITEN, Grenoble
Hydrogen Production in 3D-Printed Microfluidic Electrolyzer with an Asymmetric Electrolyte Configuration	Prof. Suddhasatwa Basu, IIT Delhi
Hydrogen R&D: A brief overview of the French CNRS network and a focus on material issues and some solutions	Pr Olivier Joubert, Univ. Nantes - CNRS, IMN, Nantes
Materials in wastewater to Hydrogen	Dr. Pooja Devi, CSIR – CSIO, Chandigarh
Polymer electrolyte fuel cells: Research opportunities and technology challenges in Indian context	Dr. Santosh Bhat, CSIR-CECRI, Karaikudi
Advanced composite materials for high pressure hydrogen storage	Dr. M. S. Santosh, CSIR-CIMFR, Dhanbad

<b>11.30 – 13.30</b>	<b>Session III – CLEAN FUELS (Parallel Session)</b>
<b>Session Chairs</b>	<b>Pr Christophe Coutanceau, Univ. Poitiers, CNRS Dr. R.E. Masto, CSIR - CIMFR</b>
Research activities on biomass & wastes to energy in France	Pr Antony Dufour, CNRS, LRGP, Nancy
Future Prospects of Internal Combustion Engines in a Green and Environment-Friendly Methanol Economy	Prof. Avinash K. Agarwal, IIT Kanpur
Low-cost Materials for Cleaner Energy and Environmental Applications	Dr. Nitin Labhassetwar, CSIR – NEERI, Nagpur
Optimum distributed hybrid energy systems as a sustainable solution for poor and remote Indian villages	Dr. Sudipta De, Jadhavpur University, Kolkata
Enhanced biohydrogen production from organic waste following the sequential dark and photo fermentation	Sachin Kumar, Sardar Swaran Singh National Institute of Bio-Energy, Kapurthala, India.

<b>14.30 – 16.45</b>	<b>Session IV - CARBON CAPTURE UTILIZATION &amp; STORAGE</b>
<b>Session Chairs</b>	<b>Prof. Olivier Joubert, Univ. Nantes-CNRS Prof. Avinash K. Agarwal, IIT Kanpur</b>
Carbon sinks: What role for research in accelerating their development in France?	Jacques Pironon CNRS-Univ Lorraine, Geo Resources, Nancy
Carbon and Water Recycling for Sustainable Energy: From Fundamental Chemistry to Green Technologies	Dr. Sebastian Peter, JNCASR
Strategic design of framework materials for chemical fixation of carbon dioxide and clean fuel generation coupled with value-added chemicals	Dr. C. M. Nagaraja IIT Ropar
Assisted catalytic activation of CO <sub>2</sub>	Christophe Coutanceau, Univ. Poitiers- CNRS, ICM2P, Poitiers
CO <sub>2</sub> -steam bi-reforming of methane over La <sub>1-x</sub> Sr <sub>x</sub> Ni <sub>0.8</sub> Zr <sub>0.2</sub> O <sub>3</sub> perovskite catalysts	Dr. Lingaiah, CSIR – IICT, Hyderabad
Carbon Capture and Storage in India's Energy Mix for a Net Zero Target	Dr. Debadutta Mohanty, CSIR – CIMFR, Dhanbad
<b>16.45 – 17.30</b>	<b>Tea and poster interaction (all work group papers to be displayed as posters)</b>
<b>17.30</b>	<b>Departure to FR embassy Residence</b>

## Day 3, Thursday 23<sup>rd</sup> February 2023

9.00 – 11.10	<b>Session V - (ENERGY STORAGE AND ELECTRIC GRID)</b>
<b>Session Chairs</b>	<b>Dr. Laurent Antoni, CEA-Grenoble Dr. Santosh Kumar Bhat, CSIR – CECRI, Chennai</b>
Electrochemical storage: from materials to batteries	Dr Laurence CROGUENNEC, CNRS, IMS, Bordeaux
Redox Flow Battery Chemistries	Dr. R. Kothandaraman, IIT Madras, Chennai
Materials development for efficient energy storage in rechargeable batteries: Consumer electronics to renewables	Dr. A. S. Prakash, CSIR- CECRI, Karaikudi
Electrochemical Neutralization: Concepts to Devices	Dr. Muhammed Musthafa, IISER, Pune
Strategies to enhance the fast-charging capabilities and stability of conversion-based anodes for Lithium-ion batteries	Dr. H S S Ramakrishna Matte, CeNS, Bengaluru
Towards improving the energy efficiency of energy carriers at different scales: from microgrid to territories	Dr Philippe Azais, CEA-DES, Grenoble
<b>11.10-11.40</b>	<b>Networking Coffee/Tea Break</b>

11:40 – 12:00	<b>Special Address by Prof. Venugopal Achanta, Director, CSIR - NPL</b>
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12.00 – 13.30	<b>Work Group Meeting Solar, Hydrogen and Energy Storage (Parallel Session)</b>	<b>Work Group Meeting CCUS, Biomass and Clean Fuels (Parallel Session)</b>
<b>13.30 – 14.30</b>	<b>Networking lunch and interaction</b>	

<b>14.30 – 14.45</b>	<b>Refresher Talks on Indo-French Collaborations</b>	
Indo-French funding opportunities for research and higher education	Flash Talk by Dr. Srinivasa Kaveri, Director, CNRS Office in India, Embassy of France in India, New Delhi	
Indo-French partnership for the planet	Flash Talk by Ms. Luisa Terranova – Counsellor, Political section, Embassy of France in India, New Delhi	

<b>14.45 – 15.45</b>	<b>Session V – CLEAN FUELS (Continues.....)</b>
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<b>Session Chairs</b>	<b>Pr Antony Dufour, CNRS, LRGP, Dr. R.E. Masto, CSIR – CIMFR</b>
Clean Fuels - Biomass Renewable Energy Supply Chain Management	Lt. Col. Monish Ahuja (Retd), Punjab Renewable Energy Systems Pvt. Ltd.
Sustainable and clean fuels/ energy using residual lignocellulosic biomass	Dr. Thallada Bhaskar, CSIR - IIP, Dehradun
Development of Heterostructured Photocatalyst for an Efficient Solar to Chemical Fuel Conversion	Dr. Yatendra S. Chaudhary, CSIR-IMMT

<b>15.45 – 17.15</b>	<b>Lab Tour of CSIR – NPL</b>
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<b>17.30 – 19.00</b>	<b>Work Group Meeting Solar, Hydrogen and Energy Storage (Parallel Session)</b>	<b>Work Group Meeting CCUS, Biomass and Clean Fuels (Parallel Session)</b>
<b>19.00 – 20.00</b>	<b>Presentations</b> of the outcomes of the 2 work groups	
<b>20.00 - 21.30</b>	<b>Dinner</b>	