



# International Conference on Hydrogen Energy and Sustainability (HES -2025)

## 10-12<sup>th</sup> October 2025

### IIT (BHU), Varanasi

## DAY-2

### Saturday, 11 October 2025

<b>Venue</b>	<b>DEV &amp; VARDHANA GOSWAMI LECTURE COMPLEX, IIT BHU VARANASI</b>				<b>Venue</b>
<b>08:00-09:00</b>	<b>Registration and Breakfast</b>				<b>08:00-09:00</b>
	<b>Venue: D&amp;V 1A Session Chair: Prof. M.K. Mondal</b>				
<b>9:00-9:45</b>	<b>Plenary Talk 3: Prof. K. K. Pant, Director IIT Roorkee Clean Hydrogen Production from Biomass and MSW via Gasification</b>				<b>9:00-9:45</b>
<b>9:45-10:30</b>	<b>Plenary Talk 4: Prof. Sukumar Mishra Director IIT (ISM) Dhanbad</b>				<b>9:45-10:30</b>
<b>Venue</b>	<b>D&amp;V 2C</b>		<b>D&amp;V 2D</b>		<b>Venue</b>
<b>10:40-13:20</b>	<b>Session 5: Hydrogen Production Session Chair: Prof. Ejaz Ahmad, IIT (ISM)Dhanbad Prof. Ravi Jaiswal, IIT BHU</b>		<b>Session 6: Waste to Energy Session Chair: Prof. Satya Vir Singh, IIT BHU Dr. Snigdha Mishra, University of Leicester</b>		<b>10:40-13:20</b>
	<b>Speaker</b>	<b>Title</b>	<b>Speaker</b>	<b>Title</b>	
<b>10:40-11:05</b>	<b>Prof. Sebastian Peter (JNCASR, Bangalore) (Keynote)</b>	<b>Advanced Materials for Hydrogen Generation: From Water Recycling to Scalable</b>	<b>Dr. Sunil Dhole (JNK Chemdist Tech. Pune) (Keynote)</b>	<b>Decarbonizing the Chemical Industry Through Innovative Alternatives in Green Hydrogen Production</b>	<b>10:40-11:05</b>



		Technologies			
11:05-11:30	<b>Dr. Lingaiah Nakka</b> (IICT, Hyderabad) (Keynote)	Bi-metallic Catalytic Systems for Hydrogen rich Syngas Production via Bi-reforming of Methane	<b>Prof. Vimal Chandra Srivastava</b> (IIT Roorkee) (Keynote)	Waste to energy	11:05-11:30
11:30-11:50	<b>Prof. Tarak Mondal</b> (IIT Ropar) (Invited)	A Sustainable Route for the Production of Hydrogen from Agricultural Residue	<b>Dr. Rakesh Saini</b> Principal Scientist, CSIR - IMMT Bhubaneswar (Invited)	Sustainable utilization of industrial solid waste substrate via thermochemical route	11:30-11:50
11:50-12:00	<b>Prof. Taraknath Das</b> (IIT Roorkee)	Dry Reforming of Methane for the syngas production using supported Ni-catalyst: Catalyst regeneration and MW-Cnts Separation	<b>Prof. Asma Iqbal</b> (NIT Srinagar)	Valorising Non-Recyclable Waste to Energy using Downdraft Gasifier	11:50-12:00
12:00-12:10	<b>Prof. Vandana Meena</b> (NIT Kurukshetra)	Silicon-Type babio2x (X = Cl, Br) Oxyhalides as Promising Photocatalysts for Sustainable Hydrogen Generation and Environmental Remediation	<b>Prof. Minal Prashant Deshmukh</b> (MIT WPU, Pune)	An Eco-Friendly Solution for Bioethanol Production from Microalgae with Optimized Process Parameters and Emission Characteristics	12:00-12:10
12:10-12:20	<b>Dr. Deepak Chandra Sau</b> (CSIR-National Metallurgical Laboratory)	Development of a Process for Production of Hydrogen from Iron Oxide Waste Fines (wurtzite)	<b>Prof. Siva Mohan Reddy Narapureddy</b> (IIT Roorkee)	In-situ hydrogen production and battery electrode materials from metal effluent and biomass	12:10-12:20
12:20-12:30	<b>Rinkoo bhabal</b> (CHRIST University, Bangalore)	Bimetallic Co-Ni-MOF-derived electrocatalyst for green hydrogen production	<b>Prof. Jyoti Prasad Chakraborty</b> (IIT BHU)	Bio-asphaltene to biohydrogen: production challenges and future prospects	12:20-12:30



		by urea electrolysis in wastewater			
12:30-12:40	<b>Sri Himaja Pamu</b> (BITS Pilani)	Harnessing Sunlight for Photocatalytic Hydrogen Evolution via Band-Engineered lanio3-lavo4 Heterostructures	<b>Dr. Apoorv Verma</b> (Kaunas University of Technology), Lithuania	Insights from lab-scale experiment and numerical simulation to investigate the hydrogen flow behaviour during underground storage	12:30-12:40
12:40-12:50	<b>Lomas Rishi</b> (IIT Jammu)	Methane Decomposition over Fe-Co/Al <sub>2</sub> O <sub>3</sub> : Catalyst and Reaction Conditions Optimization	<b>Pankaj Parmar</b> (IIT Kharagpur)	Thermochemical Conversion of Biomass Waste to Energy: Product Yield, Characterization, and Optimization in Pyrolysis Systems	12:40-12:50
12:50-13:00	<b>Abhishek Anand</b> (IIT BHU)	Role of CeO <sub>2</sub> -YSZ Intermediate Layers in Improving Hydrogen Permeance of Palladium Membranes on Porous $\alpha$ -Al <sub>2</sub> O <sub>3</sub> Supports	<b>Mrinmoy Kumar Sarmah</b> (IIT Guwahati)	Experimental Investigation of Syngas Production in A 25 kw Dual Fluidized Bed Gasifier (DFBG)	12:50-13:00
13:00-13:10	<b>Vishal Uttam Dhakane</b> (IIT Jammu)	Integrated CFD and Machine Learning Approach for Hydrodynamics and Kinetics Modelling in a Cu-Cl Cycle Fluidized Bed Reactor for Hydrogen Production	<b>Prof. Sindhu S</b> (Amrita Vishwa Vidyapeetham)	Pyrolysis Kinetics Study of Lignocellulosic Biomasses	13:00-13:10
13:10-13:20	<b>Dr. Jitendra Kumar Prabhakar</b> (IIT Kanpur)	Optimizing Ni/Mn Ratio and Metal Loading in Ni-Mn/Al <sub>2</sub> O <sub>3</sub> Catalysts for	<b>Aravindh Rajagopalan</b> (Amrita Vishwa Vidyapeetham)	Overcoming PdO-to-Pd Deactivation Transition under	13:10-13:20



		Low Temperature CO <sub>2</sub> Methanation		Methane Partial Oxidation: Effect of Pt loading	
<b>13:20-14:20</b>	<b>Lunch Break</b>				<b>13:20-14:20</b>
<b>Venue</b>	<b>D&amp;V 2C</b>		<b>D&amp;V 2D</b>		<b>Venue</b>
<b>14:20-16:30</b>	<b>Session 7: Hydrogen Storage</b> <b>Session Chair: Dr. Siddharth Mayur, h2e Power</b> <b>Prof. Nitai C Maji, IIT BHU</b>		<b>Session 8: CO<sub>2</sub> Capture</b> <b>Session: Dr. Vaibhav Pandey, NTPC</b> <b>Prof. Madhulika Gupta, IIT (ISM) Dhanbad</b>		<b>14:20-16:20</b>
	<b>Speaker</b>	<b>Title</b>	<b>Speaker</b>	<b>Title</b>	
<b>14:20-14:45</b>	<b>Prof. Pratibha Sharma</b> (IIT Bombay) <b>(Keynote)</b>	Metal Hydride Based Hydrogen Storage	<b>Prof. Saroj Kumar Nayak</b> (IIT Bhubaneswar) <b>(Keynote)</b>	Advanced Functional Materials for Energy Transition	<b>14:20-14:45</b>
<b>14:45-15:10</b>	<b>Prof. Jitendra Sangwai</b> (IIT Madras) <b>(Keynote)</b>	Underground Hydrogen Storage	<b>Prof. Swapna Rabha</b> (IIT Madras) <b>(Keynote)</b>	CO <sub>2</sub> Capture: Challenges, Advances and Future opportunity	<b>14:45-15:10</b>
<b>15:10-15:30</b>	<b>Prof. Sushant Kumar</b> (IIT Patna) <b>(Invited)</b>	Ammonia Synthesis Under Mild Reaction Conditions: A Way to Make Hydrogen Storage and Transportation More Economic and Realistic	<b>Prof. Himanshu Goyal</b> (IIT Madras) <b>(Invited)</b>	Modelling of Joule heated reactors: Applications in H <sub>2</sub> production and CO <sub>2</sub> capture	<b>15:10-15:30</b>
<b>15:30-15:40</b>	<b>Prof. Subrata Panda</b> (IIT BHU)	Effect of Pressure Compaction on Microstructural Evolutions and Hydrogen Storage Properties of Magnesium Powders	<b>Saswata Dhar</b> (Defence Institute of Advanced Technology)	Collective Suppression Effect of Hydrogen-Air Mixture with CO <sub>2</sub> and Propene	<b>15:30-15:40</b>



15:40-15:50	<b>Prof. Sumeet Kumar Dubey</b> (UPES Dehradun)	Unveiling the PCI Characteristics of Mg-Ni Alloy: A Step Towards Efficient H <sub>2</sub> Storage	<b>Abhimanyu Singh Khichi</b> (IIT Madras)	A Comprehensive Investigation of CO <sub>2</sub> Absorption and Desorption Performance Using Novel Amine Solvents	15:40-15:50
15:50-16:00	<b>Chaithanya Purushottam Bhat</b> (BITS Pilani)	Ti-Functionalized Newly Modelled Penta-Hexa-Deca Graphene as a Promising Hydrogen Storage Material: A First-Principles Study	<b>Praveen Kumar R</b> (IIT Madras)	Evaluating the Absorption performance and Degradation behavior of MEA in Cyclic Post-Combustion CO <sub>2</sub> Capture	15:50-16:00
16:00-16:10	<b>Digvijay Kumar Gupta</b> (IIT Guwahati)	Hydrogen Storage Potential and Technical Analysis of Salt Caverns of India	<b>Athira V B</b> (National Chemical Laboratory- NCL Pune)	Optimization of Porous Support and Fabrication of Thin Film Composite (TFC) Membrane for CO <sub>2</sub> Gas Separation in Simulated Flue Gas Conditions	16:00-16:10
16:10-16:20	<b>Gaurav Arora</b> (IIT Delhi)	Modelling the Effect of Process Variables on Hydrogen Uptake and Release in a Metal Hydride Storage System	<b>Ishita mandal</b> (Indian Institute of Petroleum and Energy)	Design of plate-type heat exchangers for absorption-based carbon capture plants for Indian power plants	16:10-16:20
16:20-16:30	<b>Dr. Shyam Sunder Rao</b> (IIT BHU)	Study the Direct Synthesis of Methanol from the Natural Gas			
16:30-17:00	<b>High Tea/ Poster Session</b>				16:20-17:00
<b>Venue: D&amp;V 1A</b>					



17:00- 18:00	<b>Pannel Discussion</b>	17:00- 18:00
18:00- 19:00	<b>Poster Session</b>	18:00- 19:00
19:00- 22:00	<b>GALA Dinner</b>	19:00- 22:00