



**International Conference on Hydrogen Energy and Sustainability (HES -2025)**  
**10-12<sup>th</sup> October 2025**  
**IIT (BHU), Varanasi**  
**DAY-1**  
**Friday, 10 October 2025**

<b>Venue</b>	<b>DEV &amp; VARDHANA GOSWAMI LECTURE COMPLEX, IIT BHU VARANASI</b>	<b>Venue</b>
<b>8:00-9:00</b>	<b>Registration and Breakfast</b>	<b>8:00-9:00</b>
<b>9:00-9:45</b>	<b>Inauguration</b> <b>Chief Guest: Prof. Suddhasatwa Basu, IIT Delhi</b> <b>Venue: D&amp;V 1A</b>	<b>9:00-9:45</b>
<b>9:00-9:05</b>	<b>Dignitaries on Dias</b>	<b>9:00-9:05</b>
<b>9:05-9:10</b>	<b>Garlanding on Statue of Malviya Ji followed by Lamp Lightening</b>	<b>9:05-9:10</b>
<b>9:10-9:15</b>	<b>Kulgeet</b>	<b>9:10-9:15</b>
<b>9:15-9:18</b>	<b>Welcome Address by Convener HES 2025</b>	<b>9:15-9:18</b>
<b>9:18-9:21</b>	<b>Welcome Address by Prof. M.K. Mondal, Head, Dept of Chemical Engineering and Technology</b>	<b>9:18-9:21</b>
<b>9:21-9:24</b>	<b>Address by Dean R&amp;D Prof. Rajesh Kumar</b>	<b>9:21-9:24</b>
<b>9:24-9:30</b>	<b>Address by Director IIT BHU Prof. Amit Patra</b>	<b>9:24-9:30</b>



9:30-9:40	<b>Address by Prof. Suddhasatwa Basu, IIT Delhi</b>				9:30-9:40
9:40-9:45	<b>Conference Opening</b>				9:40-9:45
9:45-10:15	<b>High Tea/Poster</b>				9:45-10:15
10:15-11:00	<b>Plenary Talk 1: Chief Guest: Prof. Suddhasatwa Basu IIT Delhi Session Chair: Prof P.K. Mishra</b>				10:15-11:00
<b>Venue</b>	<b>D&amp;V 2C</b>		<b>D&amp;V 2D</b>		<b>Venue</b>
11:00-13:30	<b>Session 1: Hydrogen Production Session Chair: Prof. Raveendra Gundlapalli, IIT BHU Prof. Subrata Panda, IIT BHU</b>		<b>Session 2: Hydrogen Application Session Chair: Prof. Hiralal Pramanik, IIT BHU Prof. Jitendra Sangwai, IIT Madras</b>		11:00-13:25
	<b>Speaker</b>	<b>Title</b>	<b>Speaker</b>	<b>Title</b>	
11:00-11:25	<b>Dr. Ranjith Krishna Pai</b> DST, New Delhi <b>(Keynote)</b>	Department of Science and Technology- Hydrogen and Fuel cell Program	<b>Dr. Anirudh Gautam</b> Center for Railway Research <b>(Keynote)</b>	Hydrogen Applications in Indian Railways	11:00-11:25
11:25-11:50	<b>Prof. Arvind Kumar Chandiran</b> IIT Madras <b>(Keynote)</b>	Halide Perovskites for Solar Water Splitting	<b>Mr. Sidharth Mayur</b> h2e Power <b>(Keynote)</b>	Fuel Cell	11:25-11:50
11:50-12:10	<b>Prof. Kumud Malika Tripathi</b> IIT Jodhpur <b>(Invited)</b>	Photocatalytic Hydrogen Evolution from Diesel Soot Derived Carbon Nano Onions: A Circular Path to Sustainable Energy	<b>Mr. Om Prakash Verma</b> Prism Johnson Limited- Cement Division <b>(Keynote)</b>	Scope of Hydrogen Usage in the Cement Industry	11:50-12:15



12:10-12:20	<b>Prof. Loveleen Kaur Brar</b> (TIET, Patiala)	Synthesis of TaO/MoO at C <sub>3</sub> N <sub>4</sub> Electrocatalysts for Water Splitting	<b>Prof. Umamaheswarrao P</b> (Bapatla Engineering College)	Performance and Emissions Optimization of a CI Engine Using RSM and Machine Learning Models using Hydrogen-Enriched Sesame Biodiesel blends	12:15-12:25
12:20-12:30	<b>Dr. Santosh Kumar Singh</b> (IIT (ISM) Dhanbad)	Assessment and optimization of solar-driven organic Rankine cycle for sustainable hydrogen production	<b>Dr. Priyanshu</b> (IIT Jammu)	Fixed-Wing UAV Integrated with a Hydrogen Fuel Cell to Enhance Long-Endurance and Sustainable Flight	12:25-12:35
12:30-12:40	<b>Dr. Soumendra Kumar Das</b> (IIT (ISM) Dhanbad)	Efficient Prediction of Band Gap and Band Edge Position in Pure and Substituted C <sub>2</sub> N Monolayer for Photocatalytic Water Splitting Using Different Semilocal Meta-GGA Functionals	<b>Manvendra Kumar</b> (Defence Institute of Advanced Technology, Pune)	PLIF-Based Diagnostics of CO <sub>2</sub> and CF <sub>4</sub> Suppression Mechanisms in Hydrogen–Methane Flames	12:35-12:45
12:40-12:50	<b>Himanshu Asati</b> (IIT Jodhpur)	Visible Light Responsive Carbon Nano Onions-MoS <sub>2</sub> Heterostructures for Green Hydrogen Production	<b>Ankur Kumar</b> (IIT BHU)	Numerical Study of Helium Jet in Crossflow Under Active Forcing: Optimizing Penetration and Mixing	12:45-12:55
12:50-13:00	<b>Dr. Silviya R</b> (Jain University)	N-Doped Carbon Supported Co-W Phospho-Boride Electrocatalyst for Efficient Hydrogen	<b>Anbumani P</b> (BITS Pilani)	Degradation Signature Analysis of PEMFCs using Data-Driven Techniques for Hydrogen-Powered Vehicles	12:55-13:05



		Evolution in Alkaline Seawater			
<b>13:00-13:10</b>	<b>Ajeet Kumar</b> (IIT Kanpur)	g-C <sub>3</sub> N <sub>4</sub> -supported A <sub>2</sub> SnO <sub>3</sub> (A = Fe, Ni) perovskite-based dual S-scheme heterostructure: Efficient hydrogen evolution via photocatalytic water splitting	<b>Arjun Singh Kachhawa</b> (Jai Narain Vyas University, Jodhpur)	Photocatalytic Water Splitting Under Visible Light Using B, N-Doped Functionalized Graphene Sheets	<b>13:05-13:15</b>
<b>13:10-13:20</b>	<b>Apoorva B C</b> (CHRIST University, Bangalore)	Alkaline Urea Splitting for Green Hydrogen production with Cobalt Sulfo-Boride MOF Electrocatalyst	<b>Rajanikant Choudhari</b> (IIT BHU)	Reduction and kinetic behaviour of premixed lean-grade manganese/iron ores during pre-reduction with hydrogen gas.	<b>13:15-13:25</b>
<b>13:20-13:30</b>	<b>Anup Mahata</b> (IIT Delhi)	Poly-phosphamide driven proton relay for membrane fabrication and electrocatalytic proton reduction			
<b>13:30-14:30</b>	<b>Lunch Break</b>				<b>13:25-14:30</b>
<b>Venue</b>	<b>D&amp;V 2C</b>		<b>D&amp;V 2D</b>		<b>Venue</b>
<b>14:30-16:30</b>	<b>Session 3: Hydrogen Production</b> Session Chair: Prof. Tarak Mandal, IIT Ropar Prof. Vijay Shinde, IIT BHU		<b>Session 4: CO<sub>2</sub> Utilization</b> Session Chair: Prof. Swapna Rabha, IIT Madras Prof. Sanjay Katheria, IIT BHU		<b>14:30-16:30</b>
	<b>Speaker</b>	<b>Title</b>	<b>Speaker</b>	<b>Title</b>	
<b>14:30-14:55</b>	<b>Dr. Sujay Karmakar</b> CGM NETRA, NTPC <b>(Keynote)</b>	Hydrogen Energy in Power Industry	<b>Dr. Vaibhav Pandey</b> NTPC <b>(Invited)</b>	Renewable Carbon to Jet Fuel: Scalable Pathways for Aviation Decarbonization	<b>14:30-14:50</b>



14:55-15:20	<b>Dr. Pramod Kumar</b> HPCL Bengaluru (Keynote)	Turquoise Hydrogen: A technology for Hydrogen Production with no CO <sub>2</sub> emission	<b>Dr. Neha Antil</b> Max Planck Institute CEC, Germany (Invited)	Ruthenium Nanoparticles Immobilized on Water-Stable Carbon-Based Supported Ionic Liquid Phases for CO <sub>2</sub> Hydrogenation to Formates	14:50-15:10
15:20-15:40	<b>Prof. Koustuv Ray</b> IIT Kharagpur (Invited)	Ni <sub>1-x</sub> Co <sub>x</sub> alloy catalyst for hydrogen production from hydrocarbon cracking and oxygenates reforming	<b>Prof. Prateek Khatri</b> NIT Rourkela (Invited)	Non-noble metal supported catalysts for methane oxidation under oxygen-rich conditions	15:10-15:30
15:40-15:50	<b>Dr. Thillai Sivakumar Natarajan</b> (CSIR-Central Leather Research Institute)	Catalysts-Driven Hydrogen Production from Aluminium-Water Systems: Reaction Mechanism and Kinetic Perspectives	<b>Prasenjit Barman</b> (Assam Energy Institute, Sivasagar, Assam)	Enhancement of Performance Parameters and Control of Emission Characteristics of a Hydrogen Dual Fuel Diesel Engine	15:30-15:40
15:50-16:00	<b>Dr. Keshav Kumar</b> (IIT Guwahati)	Comparative Study of Traditional Reformer, Membrane Reformer, and Double Stage Membrane Reformer for Enhanced Hydrogen Production Using Methanol Steam Reforming	<b>Garima</b> (IIT Kanpur)	Effect of Al <sub>2</sub> O <sub>3</sub> , SiO <sub>2</sub> , TiO <sub>2</sub> , and SiO <sub>2</sub> - Al <sub>2</sub> O <sub>3</sub> supports on the Ni catalyst for CO <sub>2</sub> methanation	15:40-15:50
16:00-16:10	<b>Aakash Rajpoot</b> IIT (ISM) Dhanbad	Turquoise Hydrogen and Carbon Nanotube Production via Catalytic Methane Decomposition over Fe-Co-Zn/ $\gamma$ -Al <sub>2</sub> O <sub>3</sub> Nanocatalyst	<b>Jenish S</b> (IIT Jammu)	Comparison of PSA and TSA for the Separation of CO <sub>2</sub> - N <sub>2</sub> mixtures by Computational and Experimental Investigations	15:50-16:00



16:10-16:20	<b>Sachin Kumar Sharma</b> (IIT Guwahati)	Structurally Tuned Ni-Fe-LDH/CNT Electrocatalyst for Efficient Hydrogen Evolution	<b>Rajvikram Singh</b> (IIT Kanpur)	Optimization of a catalytic system for RWGS: Influence of active metal, support and calcination temperature	16:00-16:10
16:20-16:30	<b>Bhavtosh Pandey</b> (HBTU)	Hydrogen Policy Landscape and Energy Management Architecture in India: Prospects, Complexities, and The National Green Hydrogen Mission	<b>Lavanya Yalagandula</b> (BITS Pilani)	Dual-functional Catalyst for Efficient CO <sub>2</sub> Conversion into Value-added Products	16:10-16:20
			<b>Rajeev Ranjan</b> (IIT Roorkee)	Role of catalyst supports in enhancing selective hydrogenation of CO <sub>2</sub> to formic acid over Ni-based catalysts	16:20-16:30
	<b>Venue: D&amp;V 1A</b>				
16:40-17:25	<b>Plenary Talk 2: Prof. R Sonde, BITS Goa and IIT Delhi</b> <b>Science - Speed - Safety - Scale to realise hydrogen economy for India. Sharing of Jodhpur hydrogen valley experience so far</b> <b>Session Chair: Prof. R.S. Singh, IIT BHU</b>				16:40-17:25
17:25-18:30	<b>High Tea/ Poster Session</b>				17:25-18:30