



# Workshop on Hydrogen Energy Systems: Electrolysers & Fuel Cells



(10 – 12 April 2023)

**About Workshop:** Green Hydrogen has become global keyword in reduction of Greenhouse Gases and achieve Net Zero Emissions. It provides the potential to become the strongest candidate as alternative energy carrier and chemical feedstock that has wide-range industrial applications. Electrolyzers are the heart of any green hydrogen production facility coupled with renewable energy sources. India has launched National Green Hydrogen Mission to produce 5 MMTPA Green Hydrogen by 2030. Green Hydrogen Policy envisages establishing 35-40 GW Electrolyzer capacity to generate Green Hydrogen that will be used for Refining, Fertilizer, Heavy duty transport, Steel, Cement, Power, etc. **CSIR-National Chemical Laboratory, Pune** and Danao Green Tech Private Limited have organized 3-Day Workshop on 'Hydrogen Energy Systems' that provides key inputs on various aspects associated with Hydrogen generation, storage, transmission, distribution, applications, Fuel Cells, Renewable energy sources, etc leading to Capacity Building.

**Workshop Content:** National Green Hydrogen Mission, Green Hydrogen Policy; Conventional and futuristic Hydrogen production technologies; AEM, PEM, Alkaline, Solid Oxide Electrolyzers; Fuel Cell Technologies: LTFC, HTFC, Bipolar plate; Membranes for Fuel Cell & Electrolyzer; Hydrogen Safety, Storage, Transmission, Distribution; Applications: Industrial, Chemicals, Transport, Building, Power, Steel; Solar Photovoltaic for Green Hydrogen; Water Quality Requirement and Processing; Complete Green Hydrogen Process Cycle.

**Workshop mode:** Sessions, Live demonstrations, Interactions and Networking.

**Equal importance will be given to lectures and live demonstrations of systems**

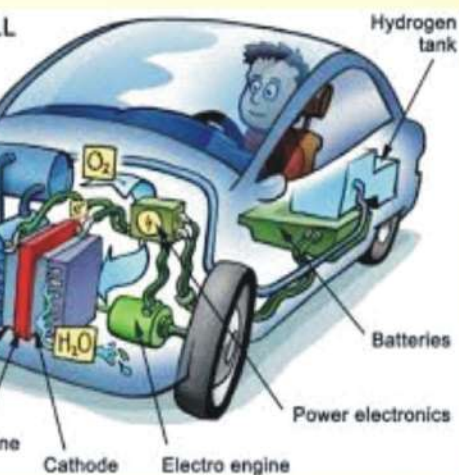
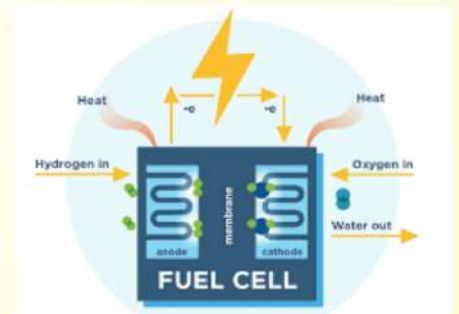
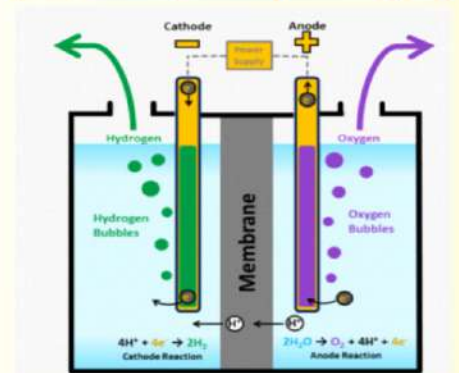
**Speakers:** CSIR-NCL Director, Deputy Director and Scientists from CSIR NCL, CECRI, CGCRI and others

**For Whom:** Start-ups, Entrepreneurs; Technical, Managerial and R&D Industrial Professionals working in Hydrogen/ Alternate/ Conventional Energy Systems; Industries like Automobile, Refinery, Steel, Transportation, Cement, etc

**Duration:** 10 -12 April (3 days) **Number of Participants:** 25 Max

**Workshop fee:**

- Rs. 50,000/- + 18% GST per participant (Lunch and Tea included)
- 5% Discount on fee paid upto 25 March 2023
- Participants have to arrange travel, breakfast, dinner, accommodation, etc.



**VENUE**  
**CSIR-National Chemical Laboratory**  
**Pune – 411 008 (India)**

**FOR REGISTRATIONS & DETAILS**

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**Registration Link**  
**<https://forms.gle/TtJeGEaLJX1Q8C1KA>**

**This program is covered under the CSIR Integrated Skill Initiative through  
"Hydrogen Technology (H2T) Program"**



# Workshop on 'Hydrogen Energy Systems: Electrolysers and Fuel Cells'

10 – 12 April 2023



## Workshop Details

Equal importance will be given to **Lectures and Live Demonstrations** of Systems

### Presentations and Interactions

- Keynote on why hydrogen is important for India?
- Keynote on hydrogen economy
- Industry 5.0, H<sub>2</sub> policy, H<sub>2</sub> generation methods, Energy sources
- AEM Electrolyzer: Technology
- H<sub>2</sub> Safety aspects, Storage
- Solid Oxide Electrolysers; System Developed by Industry under Technology Transfer
- PEM Fuel Cell and Electrolyzer - Stack and System Design
- Alkaline Electrolyzer, PEM Electrolyzer
- Membrane applications in Fuel Cell & Electrolyzer
- PEM Fuel Cells: Fundamentals, electrocatalysts, and fabrication strategies
- Data interpretation for Fuel Cells & Electrolysers
- Green ammonia, Water purification for Electrolysers
- Solar PV for Green Hydrogen Generation

### Live Demonstrations

- AEM (Basic, cell, component, assembly)
- Bipolar plates in FC application
- Fuel Cell Test Station (LTFC)
- Membrane Electrode Assembly, single cell assembly & testing
- Fuel Cell Test Station: Assembling and testing of MEAs

### Networking and Interactions

- Networking Dinner with Resource Persons and Participants
- Open Session: Q&A, Discussion
- Lunch breaks

\* Program schedule and contents may change to some extent...

## Registration Link

<https://forms.gle/TtJeGEaLjX1Q8C1KA>