



## 2<sup>nd</sup> National Workshop on Hydrogen Energy and Fuel Cells

"Prospect for building Hydrogen based infrastructure for Transport Sector and Power Generation "

**National Institute of Solar Energy, Gwal Pahari, Gurugram**

**22-23 November, 2017**

### Introduction

Hydrogen is attracting considerable attention globally as a clean and green energy carrier for transport sector and also for stationary power generation. In India, Ministry of New and Renewable Energy (MNRE) is the Nodal Ministry for the subject related to Hydrogen Energy and Fuel Cells. MNRE has been supporting Research, Development and Demonstration (RD&D) activities in this area in the country through academic institutions, research organisations and industry for more than two decades. As a part of its overall RD&D activities relating to Hydrogen Energy and Fuel Cells, a solar photovoltaic powered hydrogen production capacity of 5 Nm<sup>3</sup>/hr along with necessary facilities for compression, storage and dispensing have been set up at the National Institute of Solar Energy (NISE), Gwal Pahari, Gurugram in 2014. This facility is currently being used for providing hydrogen fuel to hydrogen-diesel dual fuel vehicles, developed by Mahindra & Mahindra (M&M) under another project



**National Institute of Solar Energy, an autonomous institution of Ministry of New and Renewable Energy (MNRE), is the apex National R&D institution in the field of Solar Energy.**

### Objectives

The 2<sup>nd</sup> National Workshop on Hydrogen Energy and Fuel Cells intends to provide a platform to researchers from academic institutions, research laboratories, industry, NGOs, and individual professionals to interact on the following areas of hydrogen energy and fuel cells:

1. Hydrogen production using solar energy, biological route, biomass gasification, thermo-chemical route using nuclear or solar energy, including availability of hydrogen from chlor-alkali units and refineries

2. Use of hydrogen; hydrogen blends with other gaseous fuels and hydrogen-diesel dual fuel in IC engine for vehicles and stationary power generation .
3. Use of PEMFC and SOFC for stationary power generation, including mechanism for supply of hydrogen/fuel to telecom towers and other application .
4. Sharing of experience of hydrogen refuelling stations for automobiles in India .



## **Day One**

### ***Inaugural Session (10:00 to 11:00)***

- *DG, NISE*
- *Advisor /Scientist-G, NISE*
- *Advisor, MNRE \**
- *Director (R&D)-IOCL\**
- *Advisor, DST\**
- *Keynote Address by Prof O.N.Srivastava,BHU,Varanasi*

### **High Tea (11:00 – 11:30)**

#### ***Technical Session-I (11:30 to 01:30)***

- *Overview of National Hydrogen Energy & Fuel Cell Programme in India and New Initiatives for Transportation and Power Generation Sectors (Adviser, MNRE)*
- *Prospects for Hydrogen fuel for transport and power generation (Prof.L.M.Das ,IIT Delhi)*
- *Role of Hydrogen Fuel Cells for Stationary Power Generation (Dr .N. Rajalakshmi,Centre for Fuel Cell Technology,Chennai)*

### **Lunch (01:30 to 02:30)**

#### ***Technical Session-II (02:30 to 04:30)***

#### ***(Hydrogen Production Infrastructure)***

- *Overview of Hydrogen Production Technologies (Prof. S.N.Upadhyay,Ex-Director,Institute of Technology,BHU,Varanasi)*
- *Hydrogen production in Chlor-Alkali Units and role it can play for providing Hydrogen (Mr.K.Srinivasan,Secretary General ,Alkali Manufacturers Association of India,New Delhi)*
- *Hydrogen Production Stations for transport sector – experience of IOCL and its plans for supply of hydrogen from refineries (Dr.Reji Mathai,General Manager, Technology & Forecast Division ,IOCL,Faridabad)*
- *Hydrogen production facility at Pragati Maidan,New Delhi(Mr.Ravi Subramaniam, Air Products & Chemicals ,Pune )*
- *Hydrogen production facility at NISE (Representative of NISE)*

**\*Subject to confirmation**

## **Day - 2**

### **Technical Session-III (10.00 to 12.00)**

#### **(Hydrogen Production Technologies on Horizon)**

- *Biological Hydrogen Production using wastes(Dr.S.Venkata Mohan,Principal Scientist,CSIR,IICT,Hyderabad)*
- *Biomass Gasification based hydrogen production (Prof.S.Dasappa,IISc,Bengaluru)*
- *Photo-catalytic and Photo-Electrochemical Hydrogen Production (Dr.Y.S.Chaudhary,Institute of Minerals and Matrials Technology,Bhubaneswar )*
- *Thermo-Chemical Hydrogen Production using Nuclear/Solar Heat (Representative of ONGC Energy Centre ,New Delhi)*

### **Tea (12.00-12.15)**

#### **Technical Session -IV (12.15 to 02.00)**

#### **(Hydrogen based transportation and power generation)**

- *Fuel Cell bus development and demonstration by Tata Motors (Dr.Munusamy Raja,Tata Motors,Pune)*
- *IC engine based vehicle development and demonstration by Mahindra & Mahindra (Shri Jeevan Dass,Mahindra & Mahindra ,Chennai).*
- *Use of Fuel Cell System for providing power to telecom towers including supply of Hydrogen (Mr.Vipul Shah,Intelligent Energy ,Bengaluru)*
- *SOFC system for meeting power requirement of industry including fuel linkage (Representative of Bloom Energy India, Bengaluru)*

### **Lunch (02.00 - 03.00)**

#### **Technical Session- V (03.00 - 04.00)**

- *Visit to Hydrogen Fueling Station of NISE. Demonstration of different types of hydrogen / hydrogen-diesel dual fuel vehicles will also be organised,if possible.*

## Participants

*Some experts who have extensive experience in the area of hydrogen energy and fuel cells will be invited for making presentations and sharing their views in the workshop, as per the tentative programme given above. The likely participants in the Workshop may include research scholars engaged in hydrogen energy and fuel cells; Principal Investigators of R&D projects supported by the MNRE; representatives of the concerned Government Departments; representatives from research laboratories and industry; and independent professionals.*

## Registration Fee

*Rs. 5000/- plus admissible taxes for all the participants excluding the research scholars (M.Tech and Ph.D student, and Post -Doctoral Fellow), who will be charged Rs. 3000/- plus admissible taxes.*

**Last Date of Registration : 10/11/2017**

**Convenor : Shri .S.K.Singh**

**Co- Convenor : Dr.Chandan Benerjee**

**Organising Committee :**

**Dr.M.R.Nouni (0124-2579212)**

**Dr.Shweta Soam (9582699978)**

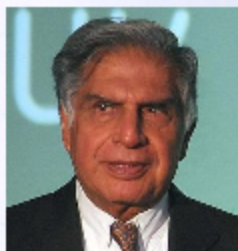
**Mr.Amit katiyar (9873691002)**

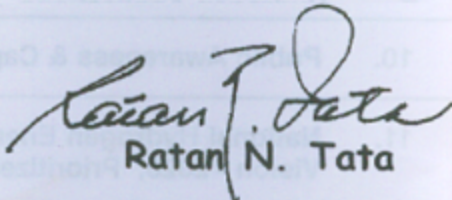
**Ms. Pragati Rajput (8826026125)**

**Mr. Prakash Jha (999893357)**

**Email -hydrogenevents.nise@gmail.com**

For India, it is important that we chart a time-bound course for ourselves that will provide us with energy security, and abundant energy resources to meet the nation's growing needs. It is necessary that we take a holistic approach to conserve our current fossil fuel reserves while at the same time take bold steps to be in the forefront of technology development of new energy options like hydrogen.



  
Ratan N. Tata



**2<sup>ND</sup> National Workshop on Hydrogen Energy and Fuel Cells**  
**22<sup>ND</sup> – 23<sup>RD</sup> NOVEMBER 2017**

**Registration Form**  
**(Last Date for registration: 10 Nov, 2017)**

Kindly provide the following details (**in Block Letters only**)

Name of Delegate/Participant :

Name of the organization :

GST number of the Organization  
(If Invoice /Receipt required in the name of organization) :

Designation :

Contact number :

Email id :

Address with Pin Number :

NEFT / IMPS / Bank Draft Number :

Date on NEFT / IMPS/Bank Draft :

Issuing bank for Bank Draft :

Fee Amount Paid :

Topic of Interest :

Signature :

Affix passport  
photograph (not  
older than 3  
months)

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**22<sup>ND</sup> – 23<sup>RD</sup> NOVEMBER 2017**

**Workshop Fee**

- 1. For Professionals:** Rs. 5000 +18% GST= **Rs. 5900/-**
- 2. For Research scholars (M.tech., Ph.D. students and Post- doctoral fellow):** Rs. 3000 +18% GST= **Rs. 3540/-**

**Payment Details**

Kindly make your payment through IMPS/NEFT/ DEMAND DRAFT in favour of

**Account Holder Name: NISE SKILL DEVELOPMENT**

**Account Type:** Savings Bank

**Bank Name:** State Bank of India

**Branch:** Qutub Plaza, Shopping Cent, DLF, Qutub Enclave, Phase 1, Haryana

**Account No. 35245666110**

**IFSC Code: SBIN0006604**

**GST No. 06AAAJN0939P1ZR**

Note: 1. Kindly keep scanned copy of the draft or NEFT copy for your reference, after sending the draft/Internet banking/NEFT transfer to us.

2. Please mention your name during online transaction.

3. Demand Draft must be made payable at Delhi.

**Contact Information**

Registration forms along with scanned copy of Demand Draft /NEFT/IMPS need to be sent through email on [hydrogenevents.nise@gmail.com](mailto:hydrogenevents.nise@gmail.com)

\*Note: For any queries, please contact following persons between 10:00 am to 5:00 pm

**Dr. Shweta Soam** (+91-9582699978);

**Pragati Rajput** (+91-8826026125);

**Amit Katiyar** (+91-9873691002);

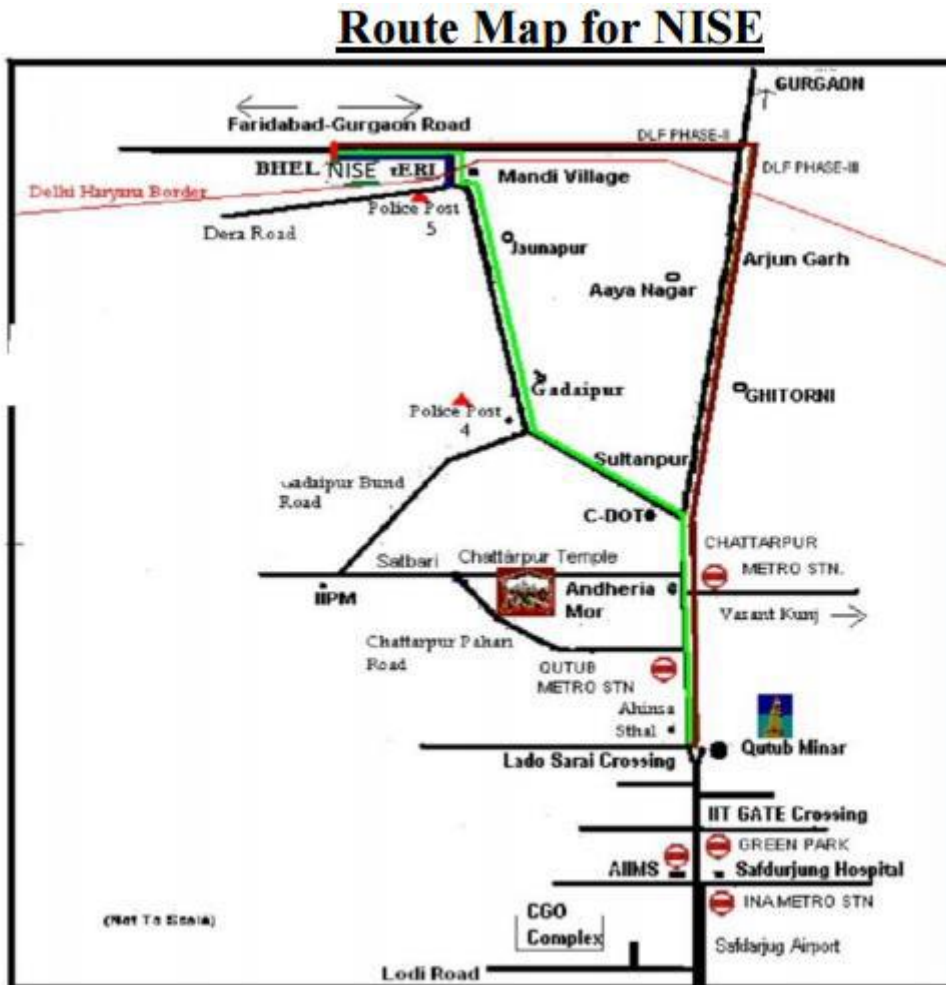
**Prakash Jha** (+91-9999893357);

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### How to reach NISE:



NISE is located in a 200 acres campus on Gurgaon-Faridabad Highway. It is approx. 10 KM from Guru Dronacharya Metro station or Sikanderpur Metro station. Radio Taxis, Ola cabs and Autos are available from these Metro stations to NISE and vice versa. When you are coming from Gurgaon to NISE, NISE is located on the left side of the Highway. If you are coming from Delhi by Car on Mehrauli – Gurgaon Road, after crossing Arjan Garh Metro station and crossing the haryana Border take a left turn towards Faridabad at Le Meridien Hotel or at Metro Pillar No. P- 14. From this point NISE is located approx. 10 km away. If you are planning to come from Faridabad side, NISE is located just 4 km after crossing toll gate on Faridabad-Gurgaon Highway. You would find NISE on the right side of the Highway.