

## **Dr. S. ANBARASU**

Assistant Professor

Department of Mechanical Engineering

National Institute of Technology Rourkela

Rourkela – 769008, Odisha, India



### **Key Skills**

- ✓ Experimental experiences on both metal hydride based thermal machines and cryogenics systems.
- ✓ Deep understanding on metal hydride based hydrogen storage devices and different applications.
- ✓ Capable of solving heat transfer and fluid flow problems using FLUENT.
- ✓ In depth numerical knowledge in developing thermal model for hydrogen storage devices using COMSOL Multiphysics.

### **Professional Experience**

- ✓ Assistant professor (July 2015 – present)  
National Institute of Technology Rourkela, Rourkela, Odisha, India.
- ✓ Project Associate/Officer (July 2007 – July 2009)  
Indian Institute of Technology Madras, Chennai, India.

### **Education**

- ✓ Ph.D., Fluid and Thermal Engineering (July 2009 – Nov 2014)  
Indian Institute of Technology Guwahati, Guwahati, Assam, India.
- ✓ M.E., Thermal Engineering (July 2005 – July 2007)  
Institute of Road and Transport Technology, Anna University, Chennai, India.
- ✓ B.E., Mechanical Engineering (July 2001 – April 2005)  
Sri Venkateswara College of Engineering, Anna University, Chennai, India.

### **List of Publications**

#### ***In peer-reviewed journals***

- ✓ S. Anbarasu, P. Muthukumar, S.C. Mishra. Thermal model on  $\text{LaNi}_{4.91}\text{Sn}_{0.15}$  based solid state hydrogen storage device embedded cooling tubes. *International Journal of Hydrogen Energy* 2014;39:15549-62.

- ✓ S. Anbarasu, P. Muthukumar, S.C. Mishra. Thermal modeling on Mg<sub>2</sub>Ni based solid state hydrogen storage hydrogen reactor. *Heat Transfer Engineering* 2014;35:1354-62.
- ✓ S. Anbarasu, P. Muthukumar, S.C. Mishra. Tests on LmNi<sub>4.91</sub>Sn<sub>0.15</sub> based solid state hydrogen storage device with embedded cooling tubes – Part B: Desorption process. *International Journal of Hydrogen Energy* 2014;39:4966-72.
- ✓ S. Anbarasu, P. Muthukumar, S.C. Mishra. Tests on LmNi<sub>4.91</sub>Sn<sub>0.15</sub> based solid state hydrogen storage device with embedded cooling tubes – Part A: Absorption process. *International Journal of Hydrogen Energy* 2014;39:3342-51.
- ✓ S. Anbarasu, P. Muthukumar, S.C. Mishra. Tests on LmNi<sub>5</sub> based solid-state hydrogen storage container. *International Journal of Science Research* 2012;1:420-24.

#### ***International/National conferences***

- ✓ S. Anbarasu, P. Muthukumar, S.C. Mishra, Thermal Modeling of Mg<sub>2</sub>Ni based Solid State Hydrogen Storage Reactor During Desorption of Hydrogen, presented at 22st National & 11th ISHMT-ASME Heat and Mass Transfer Conference, IIT Kharagpur, Kharagpur, West Bengal, India, 28-31 December 2013.
- ✓ S. Anbarasu, P. Muthukumar, S.C. Mishra, Tests on LmNi<sub>5</sub> Based Solid-State Hydrogen Storage Container, presented at Recent Advances Material Science, Tumkur University, Bangalore, Karnataka, India, 6-8 November 2012.
- ✓ S. Anbarasu, P. Muthukumar, S.C. Mishra, Numerical heat and mass transfer analysis of a hydriding process in Mg<sub>2</sub>Ni based hydrogen storage reactor with volumetric radiation, presented at 21st National & 10th ISHMT-ASME Heat and Mass Transfer Conference, IIT Madras, Chennai, TamilNadu, India, 27-30 December 2011.
- ✓ S. Anbarasu, P. Muthukumar, S.C. Mishra, Parametric studies on an Mg<sub>2</sub>Ni based hydrogen storage reactor, Presented at International Conference on Thermal Energy and Environment, Kalasalingam, TamilNadu, India, 24-26 March 2011.
- ✓ S. Anbarasu, P. Muthukumar, S.C. Mishra, Numerical investigation of coupled heat and mass transfer in Mg<sub>2</sub>Ni based hydrogen storage reactor, presented at 7th International Conference on Flow Dynamics, Sendai, Japan, 1-3 November 2010.

#### **Project Work Carried out at IIT Madras**

- ✓ **Project Title:** Development of a Joule Thomson Cryocooler with Mixed Refrigerants  
**Sponsored Agency:** Department of Science and Technology, India.

- ✓ **Project Title:** Numerical Analysis for Flow Distribution in the Passage of *PEM* Fuel Cell Stack, **Industry Client:** M/s. Centre for Fuel Cell Technology, Chennai.
- ✓ **Project Title:** Modeling and Numerical Analysis of a Baking Oven  
**Industry Client:** M/s. Britannia Industries Ltd, Chennai.

### Area of Interest

- ✓ Hydrogen Energy (Storage and Applications)
- ✓ Thermal energy storage
- ✓ Heat transfer related problems
- ✓ Renewable energy
- ✓ Refrigeration and cryogenic engineering

### Computer Skills

CAD Tools : AUTOCAD, SOLID Edge  
 Modelling Tools : *Pro-E*, SOLID WORKS  
 CFD Tools : COMSOL Multiphysics, GAMBIT, FLUENT, ANSYS

### Awards

- ✓ **International travel grant** from **University of Tokyo** to participate the summer camp, Won 2<sup>nd</sup> prize in project proposal and presentation in the camp held from July 27 to 30, 2011 at Seoul National University, Republic of South Korea organized by Global Center of Excellence for Mechanical Systems and Brain Korea 21.
- ✓ Won 1<sup>st</sup> place in **Pencelling** held in *INTERFACE '04* at CECRI, Karaikudi.
- ✓ Won 1<sup>st</sup> place in **Pot Pouri** held in *Orbitec '04* at SSN, Chennai.

### Work Shop Attended

- ✓ First Indo-US workshop on **Sustainability in Energy and Water**, IIT Madras, 27<sup>th</sup> December.
- ✓ QIP short-term course on Recent trends in **Fuels and Combustion** held from 29<sup>th</sup> August to 2<sup>nd</sup> September 2011 at IIT Guwahati.

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