

# ANURAG SINGH

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## EDUCATION

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<b>Master of Science (by Reserach), Mechanical Engineering</b> Indian Institute of Technology Madras, Chennai	CGPA: 7.8/10 (1 <sup>st</sup> Class)	(March 2016)
<b>Bachelor of Engineering, Mechanical Engineering</b> Shri Shankaracharya College of Engineering and Technology, Bhilai, Chhattisgarh	CGPA: 8.17/10 (1 <sup>st</sup> Division with Honors)	(June 2012)
<b>Intermediate Examination (12<sup>th</sup>)</b> Saraswati shishu mandir H S S CSEB Korba, CG Board	Percentage: 91.2% (1 <sup>st</sup> Division)	(April 2008)
<b>High School Examination (10<sup>th</sup>)</b> Saraswati shishu mandir H S S Nawagarh, CG Board	Percentage: 88.33% (1 <sup>st</sup> Division)	(April 2006)

## TEACHING EXPERIENCE

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- Assistant Professor at Guru Ghasidas Vishwavidyalaya Bilaspur (A Central University) in Industrial and Production Engineering department. (Feb. 2020 – Present)
- Assistant Professor (on contract basis) at Guru Ghasidas Vishwavidyalaya Bilaspur (A Central University) in Mechanical Engineering department. (July 2018 – July 2019)

## RESEARCH EXPERIENCE

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- **Project Associate, Indian Institute of Science, Bangalore** (March 2016 – March 2018)
  - 1. Metal hydride based thermal energy storage system**  
**Advisors:** Prof. Pradip Dutta and Prof. S. Srinivasa Murthy  
Theoretical and experimental analysis of thermal energy storage systems based on metal hydride. The initial phase of the project attempts to find an appropriate criterion for identifying promising materials for a closed 2-bed system. The upper bounds of selected performance indices for any chosen pair was estimated by thermodynamic analysis of the operating cycle and a system level heat transfer study.
  - 2. Solar driven silica-gel + water vapor adsorption chiller** (March 2016 – Jan 2017)  
**Advisors:** Prof. Pradip Dutta and Prof. S. Srinivasa Murthy  
A solar driven silica gel + water vapor adsorption chiller experimental setup of 10 kW cooling capacity is installed at the IISc. It is an alternative cycle to the conventional vapor compression refrigeration system (VCRS) and vapor absorption chiller which utilizes low grade thermal energy (<100°C). The experiments were conducted to get the real time system behavior.
- **Experimental P-C-T study of Mg-based metal hydride materials at NFTDC, Hyderabad** (March 2016)  
A 10 days visit to Non-Ferrous Materials Technology Development Center (NFTDC) Hyderabad, India was aimed to obtain hands-on experience in handling Mg-based metal hydride materials. Experiments were conducted to understand the fundamental behavior of absorption and desorption (PCT and kinetics) of Mg-LaNi<sub>5</sub> based materials. Also obtained expert advice on building the experimental setup for absorption and desorption studies.
- **Master's Thesis, Indian Institute of Technology Madras** (July 2012– Dec. 2015)  
**Title – Solid state hydrogen storage device: Heat exchanger design**  
**Advisors:** Prof. M. P. Maiya and Prof. S. Srinivasa Murthy  
The aim of the study was to develop an optimal thermal design, fabrication and testing of a solid state hydrogen storage device.

## PUBLICATIONS

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### Journal articles

1. **Anurag Singh**, M. P. Maiya and Srinivasa Murthy S. (2015) "Effects of heat exchanger design on the performance of a solid state hydrogen storage device." *International Journal of Hydrogen Energy*. 40(31); 9733-9746.
2. **Anurag Singh**, M. P. Maiya and S. Srinivasa Murthy, (2017) "Experiments on solid state hydrogen storage device embedded with a finned tube heat exchanger." *International Journal of Hydrogen Energy*. 42 (22); 15226-15235.
3. **Anurag Singh**, M. P. Maiya and S. Srinivasa Murthy, (2017) "Performance of a solid state hydrogen storage device with finned tube heat exchanger." *International Journal of Hydrogen Energy*.  
<http://dx.doi.org/10.1016/j.ijhydene.2017.06.071>

### International Conference proceedings

1. **Anurag Singh**, M. P. Maiya and S. Srinivasa Murthy, (2015) "Performance of solid state hydrogen storage device with finned heat exchanger," *IV International Symposium on Innovative Materials for Processes in Energy Systems*, October 23-26, Taramia, Sicily, Italy.
2. **Anurag Singh**, M. P. Maiya and S. Srinivasa Murthy, (2015) "Experimental studies on solid state hydrogen storage device embedded with a novel heat exchanger," *ISHMT-ASTFE Heat and Mass Transfer Conference*, December 17-20, Thiruvananthapuram, India.
3. **Anurag Singh**, M. P. Maiya and S. Srinivasa Murthy, (2015) "Optimization of finned tube heat exchanger embedded in a solid state hydrogen storage device," *WILS-4th International Workshop on Ionic Liquids: Advanced Energy Applications*, Jan 15-16, Tarragona, Spain.
4. **Anurag Singh**, Vijesh Kumar, M. P. Maiya and S. Srinivasa Murthy, (2014) "Performance analysis of a solid state hydrogen storage device embedded with a novel heat exchanger design," *International conference on Environment and Energy*, Dec. 15-17, Hyderabad, India.

## HONORS AND AWARDS

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- Recipient of MHRD fellowship (Govt. of India) at undergraduate level for excellence in intermediate examination (July 2008 to June 2012).
- Travel grants under DST Funding for participating in national and international conferences.
- Secured 1<sup>st</sup> position in district level 'Science Quiz Competition' (2008).

## SKILLS

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- Software: COMSOL Multiphysics, ProE, Auto-CAD, Solid works, NI Lab View.

## RESEARCH INTERESTS

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My research interests span broadly in the areas of sorption based technologies, metal hydride based storage systems, heat transfer and fluid flow, heat transfer in porous media and thermo-fluidic sciences involving Energy systems.

## POSITIONS OF RESPONSIBILITY

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- Volunteer-cum-participant at *International workshop on Solar Absorption Refrigeration Systems Operating with Ionic Liquids*, An Indo-Spanish Workshop. (Feb. 2014)
- Core member, REMECH 2014, IITM (Jan. 2014)
- Coordinator, 3<sup>rd</sup> National Conference on Refrigeration and Air Conditioning, IITM 2013. (Dec. 2013)
- Coordinator for Prabhat'11 and Prabhat'12, a national level annual Techno art fest. (Feb. 2011 & 12)

## EXTRA-CURRICULAR ACTIVITIES

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- Distance runner (Half marathons, 10 km), Triathlon, Road race, Swimming, Cricket, Badminton.