Curriculum vitae

Vikrant Trivedi

MS (research scholar) & junior research fellow
International advanced research institute for powder metallurgy & new materials
Advanced Materials Research Group of Prof. B.S. Murty,
Metallurgical and Materials Engineering,
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Academy details

Qualification	Board/University	Year	Subjects	CGPA/Percentage
MS (Research)	IIT Madras Chennai	2018 Onwards	Metallurgical &Materials Engineering	Pursuing
Bachelor of Technology	UIET CSJM University Kanpur	2012-16	Metallurgical &Materials Engineering	6.73/10
Intermediate	S.G.M. Inter College Kanpur	2011	Science stream	81/100
High School	DG Inter College Pilibhit	2009	Science stream	73/100

Research Experience

- ***Microstructure and doping effect on the enhancement of thermoelectric properties in Ni doped Dy partially filled $CoSb_3$ Skutterudites***

  Supervisor: Dr. Manjusha Battabyal (ARCI)

  - Optimization of ball milling and spark plasma sintering parameters of annealed powder
  - Study of doping behavior over micro structural properties
  - Optimization of Thermoelectrics property with respect to grain boundary engineering
  - Study of "Phonon-glass-electron-crystal " behavior

- ***Study of structural stability of Hydroxyapatide incorporation of cations/anions doping (B.tech project)***

  Supervisor: Dr. Kantesh Balani (IITK)

  - Optimizing the dopant behavior of wet chemical synthesized nanocrystalline Hydroxyapatite.
  - Understanding the biocompatibility,osteo-induction,cell growth of bio-HAp.
  - Optimization of sintering parameters of as synthesized and annealed powders in air and oxygen atmospheres.
  - Study of mechanical properties e.g, fracture toughness, hardness, wettability and wear resistance

- ***Effect of micro-alloyed elements in steel with effectiveness of annealing temperature (industrial training)***

  Supervisor: Dr. D.K.Marathe (SAIL Bhilai)

  - Production parameters of microalloyed steels and process parameters.
  - Study of microstructural changes during processing and heat treatment
  - Study of mechanical properties vs alloying content of different elements.

Conference Presentations

- **"Enhanced Thermoelectric Properties in Ni doped $CoSb_3$ Skutterudites Processed by Spark Plasma Sintering"**, Proceedings of **Indo-UK workshop on thermoelectric materials for waste heat harvesting,**January 8-10, 2018, Page 23, 2018.
- **Effect of thermo-mechanical teatment on the microstructure and the thermoelectric properties in doped $CoSb_3$ skutterudites,**Vikrant Trivedi, Priyadarshini Balasubramanian, Raghavan Gopalan, Manjusha Battabyal
  Indo-US workshop on energy Materials, 2018.

- **High efficient thermoelectric materials and thermoelectric modules for waste heat recovery** Manjusha Battabyal*, Vikrant Trivedi, Priyadarshini Balasubramanian, B. Jayachandran, D. Sivaprahasam, Raghavan Gopaln , **5th ICNN** 2018 held at **VIT, Chennai** February 10-12, 2018.
- **Synergistically enhancement of thermoelectric properties in partially filled $CoSb_3$ skutterudites through simultaneous doping and nanostructuring**
  Manjusha Battabyal*, Vikrant Trivedi, Priyadarshini Balasubramanian, Balasubramanian, Raghavan Gopalan ,
  36th International Conference on **Thermoelectrics (ICT-2018)** held **at CAEN, France** during 1st to 5th July 2018.

Industrial training

- Industrial training in "**Steel authority of India (SAIL)" Bhilai** (Chhattisgarh).
- This training include exposure to steel and iron making, coke production ,wire ,rod and sheet rolling mills.
- Various industrial and ethics protocol learning ,shop floor working style

Research interest

- Skutterudites type thermoelectric materials
- Green chemistry assisted nomaterials synthesis
- Nanomaterials production (top-up amd bottom –up approach)
- Elecro & Electroless plating
- Metallization of ceramic substrate
- Functional properties of nanomaterials
- High temperature Mechanical properties testing (strength ,creep test & fatigue testing)

Membership of professional society

- Life time membership , **The minerals, metals & materials society**
- Life time membership , **Powder Metallurgy Association of India**

Experimental Skills

- Ball Milling Units (**Fritsch** and **Restch CM-100 & CM-100-PM**);
- Glove box handling (very low level $O_{2\ ppm}$,**Mbraun Unilb plus workstations**)
- Seebeck and Resistance measurement system **(Seebsys,NorECS AS Norwegian Electro Ceramics AS Norway)**
- Operation and understanding of **Spark Plasma Sintering** unit with extensive experience o**n Dr. Sinter SPS – 500 (Fuji Electronic Industrial Co., Ltd),**
- Pyccnometer **(AccuPyc 13330-Micrometrics)** for density measurements with principle of pressure change in Helium in a calibrated volume and sub sieve **(95,Fisher scientific)** & Mastersizer particle size analyzer **(Malvern panalytical)** for particle size measurement .
- Thermal constant analyzer (**Hot disk TPS 2500S, Sweden**) for thermal conductivity and specific heat measurement at temperature range of 30 K to 1000 K.
- Various type of furnaces and their operation **(Rapid annealing furnace, tube ,box and high vacuum brazing furnace)**
- Chemical laboratory operations like **Fumehood**,**Titrator**,**Ion chromatograph** ,**Ultra Sonicator** and **Centrifuge**
- Hardness**(Brinell, Rockwell)**, Impact **(Charpy & Izod)**Testing machines
- **Software:** Microsoft office 2010, Digital Micrograph 2.11, HighScoreplus3, 4.1, OriginPro 9.0 & 2015.

Interests and Other Activities

- Organizing committee member for seminar in virtual lab in IIT Kanpur.
- Proficient in Extempore and Debate competitions.
- Event organizer during Technospandan in UIET.
- Supervised summer intern in ARCI (project students).
- Student Coordinator for many inters –university seminars & games.
- Won many badminton competition inter-school

Personal details

Father: Anil trivedi

Nationality: Indian

Mother: Suman Trivedi

Date of Birth: 07/04/1994

Spouse: Anjali Trivedi

Hobby: Reading books, listening music, learning new languages

References

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