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J. JYOTHI

Education

2012-2018 **Ph. D.**, *Department of physics, National Institute of Technology Karnataka, Surathkal, Work carried out at CSIR-National Aerospace Laboratories, Bangalore*

2009-2011 **M. Sc. Degree:** *(Physics), Specialization: Electronics, Sri Padmavathi Women's Degree and Post-Graduation College (Sri Venkateshwara University), Tirupathi, Andhra Pradesh*

2006-2009 **B. Sc. Degree:** *(Mathematics, Physics, and Computer Science), Sri Padmavathi Women's Degree and Post-Graduation College (Sri Venkateshwara University), Tirupathi, Andhra Pradesh*

2004-2006 **Intermediate:** *(Mathematics, Physics and chemistry), CAN junior College, Tirupathi, Andhra Pradesh*

2004 **SSC** Higher secondary school, Swarna Vidyalaya, A.P. state board, Andhra Pradesh

Professional Experience

Mar. 2019-Aug.2020: **Postdoctoral fellow**, *Department of Chemistry, Hebrew University, Jerusalem, Israel.*

Mar. 2018-Dec.2018: **Assistant professor**, *Department of Physics, Acharya Institute of Graduate Studies (AIGS), Bangalore, India.*

Sep. 2014- Sep. 2017: **Senior Research Fellow (CSIR)**, *Surface Engineering Division, National Aerospace Laboratories (CSIR), Bangalore, India.*

Sep. 2012- Sep. 2014: **Junior Research Fellow (CSIR)**, *Surface Engineering Division, National Aerospace Laboratories (CSIR), Bangalore, India.*

Jan. 2012- Aug. 2012: **Junior Research Fellow**, *Material Science and Research Center, Department of Physics, IIT Madras, India.*

Experience and Skills

- **Equipments:** Well versed in handling Thin Film Deposition through Physical Vapor Deposition such as Semi-Industrial Four Cathode DC unbalanced magnetron and balanced magnetron sputtering systems, DC, RF and Pulsed-DC sputtering systems, dip coaters, programmable Spin-Coater Instrument. Thermal Evaporation Vacuum Coating Unit. Operation of vacuum annealing and air annealing systems Independent operation capability of the SEM, EDS. Familiar with FIB, XPS, TEM, XRD, Raman Spectroscopy, FT-IR, AFM, Magneto-transport system for characterizing magnetic thin films using four probe methods.
- **Programming skills:** Well versed in Origin, Thin film analysis by spectrum simulations and optical models by using the Scout software. Color and Performance calculations of the thin film by Macleod software

Professional Awards and scholarships

- 2016- Best Poster Award (Certificate and cash prize) from Materials for Energy Conversion and Storage (MECS) held at Pondicherry University, Puducherry, India. 2011-
- All India 54th rank in CSIR- UGC National Eligibility Test (NET) for Junior Research Fellowship (JRF) and eligibility Lectureship in "Physical Sciences" held on 19th June, 2011.

Details of Research and Experiences Gained

Energy	Spinel's, Nanostructured spectrally Solar absorbing coatings, Nanocomposite, Multilayer coatings, Pretreatment of substrates to improve the substrate properties.	High-temperature solar thermal applications (i.e., CSP, Solar tower)
Anti-soiling	Silane, Polymer and silicon-based coatings for Anti-soiling coating on mirrors	Solar energy applications
Hard and wear resistance coatings	Carbide and Nitride based coatings	Cutting tools (i.e., drills bits, micro drill bits, etc.,)
Super hydrophobic coatings	Surface plasma etching Ultra-dry applications Antireflection coatings Oxide based coatings	Self-cleaning applications, Solar energy applications

Highlights

- Expertise in design and fabrication of thin film
- Leadership and teaching
- Hands on experience with SEM, EDS, AFM, Familiar Highly motivated and positive with FIB, corrosion test , XPS, TEM, XRD, Raman Spectroscopy, FT-IR, AFM
- Large breadth and depth of scientific and other knowledge
- Adept at PVD, sputtering and wet chemical method depositions and other equipment maintenance

List of Publications

1. Yelena, V., **Jyothi, J.**, Shlomo M., Daniel. (2020). "Carbon nanotubes based solar thermal coatings: Absorptance vs. Emittance." *Coatings*.
2. **Jyothi, J.**, Shlomo M., Daniel. M., (2020). "A single spinel layer for selective coating for solar thermal high-temperature application." (under preparation)
3. **Jyothi, J.**, Chaliyawala, H., Srinivas, G., Nagaraja, H.S. and Barshilia, H.C. (2015). "Design and fabrication of spectrally selective TiAlC/TiAlCN/TiAlSiCN/ TiAlSiCO/TiAlSiO tandem absorber for high-temperature solar thermal power applications." *Sol. Energy Mater. Sol. Cells*, 140, 209–216.
4. **Jyothi, J.**, Latha, S., Bera, P., Nagaraja, H.S. and Barshilia, H.C. (2016). "Optimization of process parameters to achieve spectrally selective TiAlC/TiAlCN/TiAlSiCN/TiAlSiCO/TiAlSiO high temperature solar absorber coating." *Sol. Energy*, 139, 58–67.
5. **Jyothi, J.**, Biswas, A., Sarkar, P., Soum-Glaude, A., Nagaraja, H.S. and Barshilia, H.C. (2017). "Optical properties of TiAlC/TiAlCN/TiAlSiCN/TiAlSiCO/TiAlSiO tandem absorber coatings by phase-modulated spectroscopic ellipsometry." *Appl. Phys. A*, 123, 496-1–10.
6. **Jyothi, J.**, Soum-Glaude, A., Nagaraja, H.S. and Barshilia, H.C. (2017). "Measurement of high temperature emissivity and photothermal conversion efficiency of TiAlC/TiAlCN/TiAlSiCN/ TiAlSiCO TiAlSiO spectrally selective coating." *Sol. Energy Mater. Sol. Cells*, 171, 123–130.
7. Atasi, D., **Jyothi, J.**, Kamanio, C., Barshilia, H.C. and Basu, B. (2016). "Spectrally selective absorber coating of WAIN/WAlON/Al₂O₃ for solar thermal applications." *Sol. Energy Mater. Sol. Cells*, 157, 716–726.

8. Nitant, G., Kavya, M.V., Yogesh, R.G., **Jyothi, J.** and Barshilia, H.C. (2013). "Superhydrophobicity on transparent fluorinated ethylene propylene films with nano-protrusion morphology by Ar+O₂ plasma etching: Study of the degradation in hydrophobicity after exposure to the environment." J. Appl. Phys.,114,164307 1-8.

Conferences

1. **Jyothi, J.**, Nagaraja, H.S. and Barshilia, H.C. (2016). "A new spectrally selective tandem absorber TiAlC/TiAlCN/TiAlSiCN/TiAlSiCO/TiAlSiO for high temperature solar thermal applications." In MECS- 2016, March 11-13, 2016, Pondicherry (Best Poster Award).
2. **Jyothi, J.**, Nagaraja, H.S. and Barshilia, H.C. (2016), Effect of composition on designed tandem absorber to achieve selective properties for high temperature solar thermal applications. In ICNANO-2016, April 21-23, 2016, Bangalore (oral presentation).
3. Atasi, D., **Jyothi, J.**, Kamanio, C., Basu, B and Barshilia, H.C. (2015). "Preparation and optical characterization of selective absorbers based on W/WAlN/WAlON/Al₂O₃ using magnetron sputtering." International conference on Nanoscience, Nanotechnology and Advanced Materials, at Gitam University of Science, Rushikonda, Visakhapatnam (oral).
4. Atasi, D., **Jyothi, J.**, Kamanio, C., Barshilia, H.C. and Basu, B (2017). "Excellent environmental stability of highly efficient multilayered solar selective absorber coating" International conference on materials for advanced technologies, Singapore (oral).
5. **Jyothi, J.**, Nagaraja, H.S. and Barshilia, H.C. (2017). "Effect of composition on designed tandem absorber to achieve selective properties for high temperature solar thermal applications." Materials Today Proceedings, 4, 12278–12284

References

<p>Dr. H. S. Nagaraja Assistant professor Department of Physics National Institute of Technology Karnataka Surathkal, Mangalore Karnataka, India. Phone: +91-0824 247 4000 Email: hoskappa@gmail.com</p>	<p>Dr. Harish C. Barshilia, Head of the Division, Surface Engineering Division, National Aerospace Laboratories - CSIR , Bangalore – 560017 Karnataka, India. Phone: 080-25086248 Email: harish@nal.res.in</p>	<p>Dr. Parthasarathi Bera Senior Scientist Surface Engineering Division CSIR-National Aerospace Laboratories, P.B.No.1779, HAL Airport Road, Bangalore-560017, India, Tel:+91-80-25086360/6685 Email: partho@nal.res.in, parthobera@yahoo.com</p>
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Career Goal

To be part of innovative research platforms where I can enjoy science and team work to build promising technologies