

Curriculum Vitae

Name: Dr. Shravanti Joshi

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Date of Birth: 18-12-1988



Academic Credentials

Class/ Degree	Specialization	Institution	University	Year	%/ CGPA	Class
Ph. D.	Sensor Technology	RMIT University Australia	RMIT University Australia	2017	NA	Distinction
M.Tech	Nanotechnology	NITK Surathkal	NITK Surathkal	2013	7.8 CGPA	Distinction
B.E.	Mechanical Engineering	Marathwada Institute of Technology, Aurangabad	Dr. Babasaheb Ambedkar Marathwada University, Aurangabad	2010	75.93%	Distinction

Academic Research Project:

1.) Doctor of Philosophy (Aug 2013 – Nov 2017)

Specialization – Sensor Technology.

Centre for Advanced Materials and Industrial Chemistry (CAMIC), School of Science, RMIT University, Australia.

Thesis: Tailored Nanostructures for CO₂ Gas Sensing Applications

Thesis passed with the highest distinction - No formal amendments were advised by the panel of international reviewers appointed by the College of Science, Engineering & Health (SEH), RMIT University, Australia.

2.) Master of Technology (July 2011 – May 2013)

Specialization – Nanotechnology.

Department of Metallurgical and Materials Engineering at National Institute of Technology Karnataka, Surathkal, India

Thesis: Deposition of ZnS Thin Films: Optimization of optical properties for application in thin-film solar cells as a buffer layer (**Institute for Plasma Research (IPR) funded project through National Fusion Program**)

Fellowship by Department of Atomic Energy (DAE), Ministry of Science and Technology, Government of India).

3.) Bachelor of Engineering (July 2006 – Aug 2010)

Specialization – Mechanical Engineering

Department of Mechanical Engineering, Marathwada Institute of Technology, affiliated to Dr. Babasaheb Ambedkar Marathwada University (DBAMU), Maharashtra (NIRF Rank 2021 - 76), India.

Thesis: Design and Development of Multi-function Jig and Fixture for Front Axle Right Hand Lever of SAME Tractor (Final year thesis project undertaken at Marathwada Auto Compo Pvt Ltd, M.I.D.C, Waluj, India in collaboration with SAME Deutz-Fahr (SDF) Group, Treviglio (Bergamo), Italy).

Key Research Areas: Solid state gas sensors, human health monitoring, breathe technology, CO₂ conversion to fuels, bandgap engineering, operando spectroscopy, photocatalysis, and nanoremediation.

Academic Experience

Sr. No.	Organization	Post	From	To	Years	Months
1	Maharashtra Institute of Technology, Aurangabad, Maharashtra	Assistant Professor Research	1 st September 2022	Present	-	-
2	Marathwada Institute of Technology, Aurangabad, Maharashtra	Assistant Professor Research	12 th July 2018	31 st August 2022	4	1

List of Courses Taught/Teaching at UG level

- Materials Science & Metallurgy (BTMEC302),
- Manufacturing Processes – Part I (BTMEC 401),
- Basics of Mechanical Engineering (BTES106),

List of Courses Taught/Teaching at PG level

- Sensors, Microprocessors & Microcontrollers (ME201).

Membership of Professional Bodies

- American Ceramic Society (ACerS), Associate Member, 2020 – Present.
- American Chemical Society (ACS), Community Member, 2019 – Present.
- Institution of Engineers (IEI), India, Associate Member 2019 – Present.

- Materials Research Society (MRS), Warrendale, Pennsylvania, Member, 2019 – Present.
- Australian Nanotechnology Network (ANN), Canberra, Australia, Member, 2016 – 2018.
- Royal Society of Victoria (RSV), Melbourne (VIC), Australia, 2015 – 2018.
- Society of Automotive Engineers (SAE), Maharashtra, India, 2006 – 2010.

Projects, Research Grants and Consultancy

- “Nanoengineered Perovskites for Solar based CO₂ Reduction: Novel Artificial Photosynthesis Implementation for Clean Energy Generation”. Carbon Capture Innovation Challenge (IC#3) - Mission Innovation, Department of Science and Technology (DST), Ministry of Science & Technology, Government of India. **(Dec 2019 – Jun 2022, Amount: 20,55,000 INR)**. PI – Dr. Shravanti Joshi. The Indo-UK bilateral project was in collaboration with The University of Edinburgh, Scotland, & Greaves Cotton Limited, India (Industrial Secondment).
- “Design & Development of Cotton Belt Folding Mechanism to Improve Aesthetic Value of Buff”. Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH (GIZ) innovation strategy project in collaboration with Osborn-Lippert, Maharashtra Industrial Development Corporation (MIDC), Maharashtra, India. **Aug 2018 – Feb 2019. Amount: 50,000 INR**. PI -Dr. Shravanti Joshi.
- Higher Degree by Research (HDR) Publication Grant, RMIT University, 2017 **(Oct 2017 – Dec 2017, 12 weeks, Amount – 6,918 AUD, Awarded to top 1% doctoral candidates)**.
- National Fusion Program (NFP) postgraduate research fellowship by Ministry of Science & Technology, Government of India, **(2012 – 2013, 12 months, Amount – 1,20,000 INR, Awarded in the year 2012 only to 12 students)**.
- National Institute of Science Technology (NIST) postgraduate research fellowship, Orissa, India, **(2012, 45 days, Amount – 30,000 INR, Awarded in 2012 only to 14 students)**.

Research Skills/Software and Instruments Proficiency

- **Software:** CAD, Pro-E, NX 6.0 (PLM by Siemens), Origin Pro 8.5, Image J, ChemDraw, MATLAB, Python, Mathematica.
- **Laboratory Competency:** Hands-on experience in chemical synthesis of nanomaterials, sensor device fabrication, and photoelectrochemical techniques. Surface functionalization/interface engineering, and electrochemical techniques.
- **Physico-chemical Techniques:** Thorough theoretical knowledge and practical experience with characterization techniques to understand chemical composition, properties of the nanomaterials and test its reliability for applications in sensing and catalysis using p-XRD, HT-XRD, GADDS, VB-XPS, UPS, micro-Raman, PL, HPLC, FTIR, UV-DRS, UV-Vis-NIR spectrophotometer, zeta potential analyzer, BET surface area analyzer, and particle size distribution using DLS.
- **In-situ Spectroscopic Techniques:** Operando instruments such as time-resolved and conventional DRIFTS, UV-DRS to understand chemical pathways contributing to sensing and catalytic phenomenon.
- **Imaging using Electron Microscopy:** Nanoscale imaging techniques with experience on high-resolution TEM, FESEM, E-SEM, EDAX, Elemental Mapping, SAED, FFT, and EELS at RMMF RMIT University (300 hours working experience).

Seminar/Workshop/Conference Attended

- 14th BRICS Summit, 7th BRICS Young Scientist Conclave and 5th Young Innovator Prize, 29th Aug – 3rd Sept 2022 at Xiamen University, Fujian province, China and coordinated by Department of Science and Technology (DST) and Ministry of External Affairs (MEA), Government of India at

IISc and NIAS Bangalore, India. Thematic Area – Low Carbon Technology. **(Only 20 participants were selected to present research work from India).**

- 21st International Conference on Nanotechnology (IEEE NANO), 28th to 30th July 2021, Montreal, Canada.
- 5th International Conference on Recent Advances in Material Chemistry (ICRAMC), Department of Chemistry, SRM Institute of Science and Technology, Chennai in association with Alternative Energies and Atomic Energy Commission (CEA), and Université Gustave Eiffel, France, 18th – 20th Feb 2021, Tamil Nadu, India.
- 35th Indian Engineering Congress, 18th – 20th Dec 2020, the Institution of Engineers, India (IEI), Kolkata, India.
- 1st Shanghai Co-operation Organization (SCO) Conclave, 24th – 28th Nov 2020 coordinated by the Department of Science and Technology (DST) & Ministry of External Affairs (MEA), Government of India at CSIR IICT, Hyderabad, India. Thematic Area - Sustainable energy/energy storage. **(Only 15 participants were selected to present research work from India).**
- MRS Fall Meeting & Exhibit, 1st – 6th Dec 2019, Boston, Massachusetts, USA.
- International Conference on Nanoscience and Nanotechnology, 29th Jan – 2nd Feb 2018, Wollongong, NSW, Australia.
- CHEMECA - RACI Centenary Congress, 23rd – 26th July 2017, Melbourne, Victoria, Australia.
- 12th IEEE International Conference on Nano/Micro Engineered and Molecular Systems, 9 – 12th April 2017, LA, USA.
- ACS Meet 2017, 21st May 2017, Melbourne University, Melbourne, Victoria, Australia.
- Materials Science Engineering Congress, 27 – 29th Sept 2016, Darmstadt University of Technology, Darmstadt, Germany.
- 32nd Sensor Symposium, 28 – 30th October 2015, Niigata, Japan.
- 2nd International Symposium on Physics and Technology of Sensors, 7 – 9th Mar 2015, University of Pune, Pune, India.

Research Publications

Papers in International Journal

Peer-Reviewed Journal Articles (9 first author articles with an average impact factor (I.F) – 8.5)

- **Shravanti Joshi***, Shyam Tonde, Uday Wakhure, Deepak Bornare, Aniruddha Chatterjee, Kaleemuddin Syed and Manorama V Sunkara. Hierarchical CaTiO₃ Microspheres for Acetone Sensing, *Sensors and Actuators B: Chemical*, 2022, 359, 131621 (I.F – **9.221**).
- Amit Kulkarni, Mrudul Satbhai, Wei Li, Deepak T Bornare, Kaleemuddin Syed, and **Shravanti Joshi***. Oleic Acid Induced Tailored Morphological Features and Structural Defects in CuO for Multifunctional Applications, *Materials Advances*, 2022, 3, 418-436 (I.F – **Pending**), 2021.
- Shyam Tonde, Shrikant More, Chinmay Hazra, Debasree Kundu, **Shravanti Joshi**, Ajinkya Satdive, Saurabh Tayde, Deepak Bornare, Bhagwan Toksha, Jitendra Naik and Aniruddha Chatterjee. 1D sub 10 nm Nanofabrication of Ultrahydrophobic Ag@TiO₂ Nanowires and their Photocatalytic, UV Shielding and Antibacterial Properties, *Advanced Powder Technology* (I.F – **4.833**)
- **Shravanti Joshi***, Ylias M. Sabri, Suresh K. Bhargava, Manorama V. Sunkara, and Samuel J. Ippolito. “Band Offset in Calcium Hydroxide Mediated CaO-ZnO Heterointerfaces” *Materials Science and Engineering B*, 2021, 265, 115005 (I.F – **4.706**).
- **Shravanti Joshi**, Lathe A Jones, Ylias M. Sabri, Suresh K. Bhargava, Manorama V. Sunkara, and Samuel J. Ippolito. “Facile Conversion of Zinc Hydroxide Carbonate to CaO-ZnO for Selective CO₂ Gas Detection” *Journal of Colloid and Interface Science*, 2020, 558, 310-322 (I.F – **9.965**).
- **Shravanti Joshi***, Ram Kumar C. B., Samuel J. Ippolito, Ylias M. Sabri, Ahmad E. Kandjani, Suresh K. Bhargava, and Manorama V. Sunkara. “Straddled Band Aligned CuO/BaTiO₃ Heterostructures: Role of Energetics at Nanointerface in Improving Photocatalytic and CO₂ Sensing Performance” *ACS Applied Nano Materials*, 2018, 1, 3375–3388 (I.F – **6.143**).

- **Shravanti Joshi***, Frank Antolasic, Suresh K. Bhargava, Manorama V. Sunkara, and Samuel J. Ippolito. “Highly Selective CO₂ Gas Sensing Properties of CaO-BaTiO₃ Heterostructures Effectuated Through Discretely Created *n-n* Nanointerfaces” *ACS Sustainable Chemistry and Engineering*, 2018, 6, 4086–4097 (**I.F – 9.224**).
- **Shravanti Joshi**, Ram Kumar C. B., Lathe A. Jones, Samuel J. Ippolito, Edwin L. H. Mayes, Manorama V. Sunkara. “Modulating Interleaved ZnO Assembly with CuO Nanoleaves for Multifunctional Performance: Perdurable CO₂ Gas Sensor and Visible Light Catalyst” *Inorganic Chemistry Frontiers*, 2017, 4, 1848–1861 (**I.F – 7.779**).
- **Shravanti Joshi**, Samuel J. Ippolito, Selvakannan R. Periasamy, Ylias M. Sabri, Manorama V. Sunkara. “Efficient Heterostructures of Ag@CuO/BaTiO₃ for Low-Temperature CO₂ Gas Detection: Assessing the Role of Nanointerfaces during Sensing by Operando DRIFTS Technique” *ACS Applied Materials & Interfaces*, 2017, 9, 27014–27026 (**I.F – 10.383**).
- **Shravanti Joshi**, Satyanarayan Lanka, Samuel J. Ippolito, Suresh K. Bhargava, Manorama V. Sunkara. “{111} Faceted Li₄Ti₅O₁₂ Octahedra as the Reference Electrode Material in a Nanostructured Potentiometric CO₂ Sensor” *Journal of Materials Chemistry A*, 2016, 4, 16418–16431 (**I.F – 14.556**).
- **Shravanti Joshi**, Samuel J. Ippolito, Manorama V. Sunkara. “Convenient Architectures of Cu₂O/SnO₂ Type II *p-n* Heterojunctions and their Application in Visible Light Catalytic Degradation of Rhodamine B” *RSC Advances*, 2016, 6, 43672-43684 (**I.F – 4.036**)

Papers in International/National Conferences Proceedings

- **Shravanti Joshi***, “Solar Induced CO₂ Reduction Achieved by Halide Tuning in Cesium Titanium (IV) Mixed Perovskite” 21st IEEE International Conference on Nanotechnology (NANO), 299-302, July 28-30, 2021, Montreal, Canada, *Publisher – IEEE Xplore*.
- **Shravanti Joshi***, “Hierarchical Faceted Cesium Tin Iodide Superparticles for Solar based CO₂ Reduction” 21st IEEE International Conference on Nanotechnology (NANO), 100-103, July 28-30, 2021, Montreal, Canada, *Publisher – IEEE Xplore*.
- **Shravanti Joshi***, “Ag@CuO Decorated Tailored Nanostructures based CO₂ sensors: Role of *n-type* Semiconductors in Enhancing Heterostructured Sensor Efficiency” Technical Volume of the 35th Indian Engineering Congress, December 18-20, 2020, Organized by the Institution of Engineers, India (IEI) at Kolkata, India. ISBN 978-81-950662-0-9, 1165-1170. **Winner of best research paper.**
- **Shravanti Joshi**, Samuel J. Ippolito, Manorama V. Sunkara, “Hierarchical assembly of interleaved *n-ZnO* network and *p-CuO* for improved chemo-resistive CO₂ Gas sensing performance” 12th IEEE International Conference on Nano/Micro Engineered and Molecular Systems, 137-142, April 9-12, 2017, Los Angeles, USA, *Publisher – IEEE Xplore*.
- **Shravanti Joshi**, Satyanarayan Lanka, Samuel J. Ippolito, Manorama V. Sunkara, “Solid State Potentiometric CO₂ Sensor Using Nanocrystalline Lithium-Ion Based Electrode Materials” 32nd Sensor Symposium, 1-4, October 28-30, 2015, Niigata, Japan, *Publisher - Institute of Electrical Engineers of Japan*.
- **Shravanti Joshi**, Satyanarayan Lanka, Pandiri Manjula, Manorama V. Sunkara, Samuel J. Ippolito, “Chemo-Resistive CO₂ Gas Sensor Based on CuO-SnO₂ Heterojunction Nanocomposite Material” 2nd International Symposium on Physics and Technology of Sensors (ISPTS-2), 43-48, March 7-8, 2015, Pune, India, *Publisher – IEEE Xplore*. **Winner of best research paper.**

Awards, Achievements and Recognition

- Represented India at the 7th BRICS Young Scientist Conclave and 5th Young Innovator’s Prize 29th Aug – 1st Sept 2022, coordinated by the Department of Science and Technology (DST), and Ministry of External Affairs (MEA), Government of India.
- Young Researcher Award - Publication in High Impact Factor Journal, 5th Feb 2021, Institute of Scholar’s, Karnataka, India (**Amount – 5000 INR**).

- Awarded best research paper at 35th Indian Engineering Congress, 18th – 20th Dec 2020, Institution of Engineers, India.
- Represented India at the 1st Shanghai Co-operation Organization (SCO) Young Scientist Conclave, 24th – 28th Nov 2020, coordinated by the CSIR Indian Institute of Chemical Technology (IICT), the Department of Science and Technology (DST) and the Ministry of External Affairs (MEA), Government of India.
- “Excellence in Engineering Science” prize by Lion’s Club and Woman Doctor’s Wing at the Indian Medical Association (IMA), Maharashtra, India on 5th Sep 2020.
- Overseas Young Faculty Travel Grant from Gramaudyogik Shikshan Mandal Trust, Nov 2019 (**Amount – 1,00,000 INR**).
- Australian Nanotechnology Network (ANN) Early Career Researcher Bursary, Feb 2018 (**Amount – 660 AUD**).
- ATA Scientific Instruments Young Scientist Encouragement Award, Nov 2017 (**Amount – 1500 AUD**).
- Pro Vice Chancellor’s Research Incentive Award, RMIT University, Australia, Aug 2017 (**Amount – 1675 AUD**).
- Early Career Researcher Registration Bursary, CHEMECA - RACI Centenary Congress, July 2017 (**Amount – 800 AUD**).
- RMIT University Higher Degree by Research Travel Grant, 2017 (**Amount – 2000 AUD**).
- RMIT University Higher Degree by Research Travel Grant, 2016 (**Amount – 2000 AUD**).
- Academic Marshal, RMIT University Graduation Ceremony, Dec 2016 (**Amount – 300 AUD**).
- Qualified IELTS with overall **7.5 out of 9 bands** conducted by IDP Education India Pvt. Ltd, Dec 2015, and Jun 2019.
- Council of Scientific & Industrial Research (CSIR), India Travel Grant, Mar 2015 (**Amount – 6000 INR**).
- Dr. N. G. Patel award for best research paper in oral category at 2nd International Symposium on Physics and Technology of Sensors (ISPTS - 2), India, Mar 2015 (**Cash Prize – 6000 INR, Awarded 1st prize out of 173 participants**).
- Materials Science Scholarship for Ph.D., School of Science, RMIT University, 2013 – 2017 (**Given to top 5% students**).
- Awarded GATE (Graduate Aptitude Test in Engineering) postgraduate fellowship in 2011 by the Department of Higher Education, Ministry of Human Resources Development (MHRD), Government of India (**All India Percentile Score – 96%**).
- Awarded best paper in oral category at BLUEPRINT WINGS, 2010, India (**Cash Prize – 5000 INR**).
- Achieved 1st rank at district level during the undergraduate study for 2008 – 2009 and 2009 – 2010.

Date: 13-09-2022

Place: Aurangabad, Maharashtra.