

Curriculum Vitae



Dr. SUVERNA TRIVEDI

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Career Overview

Institute	Designation	Tenure
Indian Institute of Technology Kharagpur West Bengal, India	Assistant Professor	14/08/2023-till date
National Institute of Technology, Rourkela Odisha, India	Assistant Professor	01/08/2022-13/08/2023
University of California, Berkeley, United State, National Institute of Technology, Rourkela Odisha, India	Fulbright post doc fellow Assistant Professor	01/08/2021-31/07/2022 12/03/2020-30/07/2021
Pandit Deendayal Energy University Gandhinagar Gujarat, India	Assistant Professor	02/07/2018-15/01/2020

Educational Information

Institute	Degree	CGPA	Year
Indian Institute of Technology Varanasi, Uttar Pradesh, India	Ph.D.	9.7	2018
Indian Institute of Technology Varanasi, Uttar Pradesh, India	M.Tech.	9.33	2014
Uttar Pradesh Technical University, Lucknow, India	B.Tech.	82%	2012

Projects Detail

Degree	Thesis title	Supervisor
Post-Doc	BECO2N sensor network measured CO and CO ₂ behavior with traffic data of Los Angeles	Prof. Ronald C Cohen
Ph.D.	Simultaneous catalytic oxidation of CO and CH ₄ : An approach of CNG vehicle emission control	Prof. Ram Prasad
M. Tech.	Simultaneous catalytic control of NO _x , Soot, CO and HC from diesel fueled vehicles	Prof. Ram Prasad

National/International Fellowships

✚ Paired Early Career Fellowship in Applied Research ...	Indo-German Science & Technology Center	2025
✚ Ulam Fellowship	Polish National Agency for Academic Exchange [NAWA]	2022
✚ Fulbright Principal candidate	United State India Education Foundation	2020
✚ M.Tech. & Ph.D. Fellowship	Ministry of Human Resource/Ministry of Education	2012-2018

Professional Recognition & Award/ Prize/ Certificate

✚ Selected as Principal Candidate for BRICS Young Scientist Forum in Russia	2024
✚ Best Faculty Advisor Award (M.Tech. 2022-2023)	2023
✚ IEI Best Presentation Award (IEI Rourkela Chapter)	2023
✚ Two Fulbright Outreach Lecture award in United state	2021
✚ International travel grant from the Science and Engineering Research Board (SERB)	2018
✚ Best poster Presentation as post graduate scientist <i>Development of nano-NiCo₂O₄ spinel for abatement of CO-CH₄ emissions from CNG vehicles, ICNBL, 25-29 May 2016, NIT Srinagar- Kashmir, India.</i>	2016
✚ Merit holder in Chemical Engineering UG Program, UPTU Lucknow, India.	2012

Details of Projects completed/under implementation

- ✚ **PI:** Development of Stable Catalysts and Pretreatment Strategies for Hydrogen production via Aqueous Phase Reforming of Hydrothermal Biomass Feedstocks from May 31, 2025-May 30, 2028. Total amount: 54.11 Lakhs
- ✚ **PI:** “Development of PGM-Free Catalytic System for Emission Control in CNG vehicles”, ISIRDC IIT KGP from June 15,2024-May 30, 2027. Total Amount:25 Lakhs

Workshop Organized:

- ✚ Advances in carbon dioxide capture and utilization for sustainable climate [ACCUSC-2022], 04 Jul 2022 - 10 Jul 2022
- ✚ Advanced Oxidation Processes for Environmental Remediation [AOPER-2022], 04 Jan 2023 - 10 Jan 2023

Webinar Organized:

- ✚ Topic: *Scientific advances and challenges in Solar energy conversion into electricity and fuels (Online)*, 04th November 2020.
- ✚ Topic: *Electrochemical Characterization of Optoelectronic Devices*, dated 21st October 2019

Outreach Activities:

- ✦ **Course facilitator:** Department of Chemistry from 1st June-31st July 2024 at SNS institutions Tamil Nadu.
- ✦ **Reviewer:** Global Development Network for project evaluation from 1st June-31st July 2024.
- ✦ **Volunteer and Member** in Young Women in Sustainable Development Grassroots Solutions Team (Global) from 1st September 2024.
- ✦ **Vritika Internship Programme to Private college Students (Fully Sponsored)**
Topic: Design And Characterization of Photo-Catalytic Materials for Industrial Wastewater Treatment, 1st-30th June 2023
 - Member of YUVA Sangam programme at NIT Rourkela and IIT Kharagpur in 2023 & 2024

Additional Information:

Responsibilities at IIT KGP:

Institute Level:

- ✓ Assistant Warden at VSRC-1 from 01/01/2024-31/12/2024
- ✓ Special Vigilance Team Member for Girls Hostel from 03/08/2024-02/10/2024

Department Level: 01/01/2024-31/12/2024

- ✓ Research Scholar Co-Ordinator, Chemical Engineering
- ✓ Member, Departmental Administrative Committee, Chemical Engineering
- ✓ Member, Departmental Academic Committee (PG & R), Chemical Engineering

Memberships:

- **IChE:** LIFE ASSOCIATE MEMBER [**LAM-61506**]
- **RSC:** AFFILIATE MEMBER [**743695**]
- **ACS:** COMMUNITY ASSOCIATE [**33734303**]
- **IEI:** LIFE MEMBER [**M-1771986**]
- **CSI:** LIFE MEMBER [**LM1127**]

Editorial Appointments-Editorial board member in Journal of Chemical Research and Application 2018.

Resource Person/Talk

- Resource person on One Week Short Term Course, “Sustainable Power Generation and Advanced Energy Storage System”, Department of Chemical Engineering, NIT Durgapur in association with The Institution of Engineers (India), Durgapur Local Centre, West Bengal, 1-5th July 2024.
- Resource person on five-day SERB Sponsored Workshop on, “Futuristic Trends in Remote Sensing using IoT enabled UAVs with Microwave Sensor”, Department of Electronic Engineering, NIT Rourkela, Odisha, 22-28nd January 2024.

- Resource person on five-day SERB Sponsored Workshop on, “Advanced materials: Materials for catalytic reduction of pollutants and their application as supercapacitors for energy storage”, Department of Chemical Engineering, Department of Chemical Engineering, NIT Rourkela, Odisha, 5-9th February 2024.
- Resource person on five-day webinar on “Recent Advances In Environmental Engineering And Management (RAEEM-2022)”, Department of Civil Engineering, NIT Rourkela, Odisha, 12-16th February 2022.
- Invited talk on “Material design for Energy and Environment application”, Department of Chemistry, Kashi Naresh Govt. PG College Gyanpur, Bhadohi, December 2022.
- Resource person on Advanced Level Bridge Course on Materials organized by Ganpat University, Faculty of Science, Mehsana, Gujarat, 1st-7th Sep. 2020.
- Delivered an invited talk on *international e-Conference on Advanced Functional Materials and Optoelectronic Devices* organized by Institute of Physical Sciences for Study and Research, Veer Bahadur Singh Purvanchal University, Jaunpur, 13-15th June 2020.
- Delivered an invited talk on *Current Application of Nano-catalyst in Chemical Engineering* organized by Applied Physics Department, Sardar Vallabhbhai National Institute of Technology, Surat 16–17th February 2019.

Book Chapter: Vr Bella, T Mondal, S Trivedi An Overview on The Use of Spinel-Based Catalysts to Reduce CO And HC Emissions From Diesel Engines, Emerging Trends in Green Chemical Technologies: Navigating Challenges and Exploring Opportunities. (2025). 84 Cambridge Scholars Publishing.

List of publications: 26

1. Kumar, A., Arya, V., Pathak, A., Trivedi, S., Guin, D., Tripathi, CSP. Enhanced Visible Light Photocatalytic Performance of CeO₂@Acidified g-C₃N₄ Nanoheterostructures for RhB Degradation. *Langmuir*, **2025**, 41, 14765–14777. [IF: 3.9]
2. **Trivedi, S.**, Selvaraj, B. P., Ochonma, P., Gadikota, G. Tunable quantum dots-modified metal–organic frameworks for photocatalytic conversion of CO₂ to fuels and chemicals: a review, *Environ. Sci. and Poll. Research*, **2025**, doi.org/10.1007/s11356-025-36447-8. [IF: 5.8]
3. Balakrishnan, A., Chinthala, M., Kumar, A., Dayanandan, N., Trivedi, S. Recent advances on graphitic carbon nitride-based homojunction as effective photocatalysts for energy and environmental remediation, *Int. J. of Hydrogen Energy*, **2025**, 98, 1020-1033. [IF: 13.3]
4. Dalela, S., Balaji, P.S., Leblouba, M., Trivedi S., Kalam A. Nonlinear static and dynamic response of a metastructure exhibiting quasi-zero-stiffness characteristics for vibration control: an experimental validation. *Sci. Rep.* **2024**, 14, 19195. [IF: 3.8]
5. Dalela S., Prasad P., Balaji P.S., **Trivedi S.**, Kalam A. A Novel Bottom Reinforced Cosine Beam based Metastructure with Quasi Zero Stiffness Characteristics for Vibration Isolation Applications, *Structures*. **2024**, 67, 16950. [IF:4.4]
6. Balakrishnan A., SuryaaV., Tripathy H., **Trivedi S.**, Kumar A., Chinthala M., Phosphorylated g-C₃N₄/sulfur self-doped g-C₃N₄ homojunction carboxymethyl cellulose beads: An efficient photocatalyst for H₂O₂ production, *Journal of Colloid and Interface Science*, 2024, 663, 1087-1098. [IF:9.9]

7. Chavan, R. D.; Tavakoli, M. M.; **Trivedi, S.**; Prochowicz, D.; Kalam, A.; Yadav, P.; Bhoite, P. H.; Hong, C. K. Interface Engineering of Mesoscopic Perovskite Solar Cells by Atomic Layer Deposition of Ta₂O₅. *ACS Appl. Energy Mater.* **2021**, *4* (10), 10433–10441. [IF: **6.024**]
8. Prochowicz, D.; **Trivedi, S.**; Parikh, N.; Saliba, M.; Kalam, A.; Mahdi Tavakoli, M.; Yadav, P. In the Quest of Low-Frequency Impedance Spectra of Efficient Perovskite Solar Cells. *Energy Technol.* **2021**, *9* (7), 2100229. [IF: **3.175**]
9. **Trivedi, S.**; Prochowicz, D.; Kalam, A.; Tavakoli, M. M.; Yadav, P. Development of All-Inorganic Lead Halide Perovskites for Carbon Dioxide Photoreduction. *Renew. Sustain. Energy Rev.* **2021**, *145*, 111047. [IF: **14.982**]
10. Narayanan, S.; Parikh, N.; Tavakoli, M. M.; Pandey, M.; Kumar, M.; Kalam, A.; **Trivedi, S.**; Prochowicz, D.; Yadav, P. Metal Halide Perovskites for Energy Storage Applications. *Eur. J. Inorg. Chem.* **2021**, (13), 1201–1212. [IF: **2.524**]
11. **Trivedi, S.**; Prochowicz, D.; Parikh, N.; Mahapatra, A.; Pandey, M. K.; Kalam, A.; Tavakoli, M. M.; Yadav, P. Recent Progress in Growth of Single-Crystal Perovskites for Photovoltaic Applications. *ACS Omega* **2021**, *6* (2), 1030–1042. [IF: **3.512**]
12. Tripathi, B.; Mahapatra, A.; Verma, D.; Kalam, A.; Pandey, M. K.; **Trivedi, S.**; Kumar, M. Electro-Analytical Comparison of Commercial Mono-Crystalline Silicon and PERC Solar Cells to Maximize Performance. *Eng. Res. Express* **2020**, *2* (4), 045018. [IF: **1.61**]
13. **Trivedi, S.**; Prasad, R.; Mishra, A.; Kalam, A.; Yadav, P. Current Scenario of CNG Vehicular Pollution and Their Possible Abatement Technologies: An Overview. *Environ. Sci. Pollut. Res.* **2020**, *27* (32), 39977–40000. [IF: **4.223**]
14. Prochowicz, D.; Tavakoli, M. M.; Wolska-Pietkiewicz, M.; Jędrzejewska, M.; **Trivedi, S.**; Kumar, M.; Zakeeruddin, S. M.; Lewiński, J.; Graetzel, M.; Yadav, P. Suppressing Recombination in Perovskite Solar Cells via Surface Engineering of TiO₂ ETL. *Sol. Energy* **2020**, *197*, 50–57. [IF: **5.742**]
15. Kalam, A.; Runjhun, R.; Mahapatra, A.; Tavakoli, M. M.; **Trivedi, S.**; Tavakoli Dastjerdi, H.; Kumar, P.; Lewiński, J.; Pandey, M.; Prochowicz, D. Interpretation of Resistance, Capacitance, Defect Density, and Activation Energy Levels in Single-Crystalline MAPbI₃. *J. Phys. Chem. C* **2020**, *124* (6), 3496–3502. [IF: **4.126**]
16. Mahapatra, A.; Runjhun, R.; Nawrocki, J.; Lewiński, J.; Kalam, A.; Kumar, P.; **Trivedi, S.**; Tavakoli, M. M.; Prochowicz, D.; Yadav, P. Elucidation of the Role of Guanidinium Incorporation in Single-Crystalline MAPbI₃ Perovskite on Ion Migration and Activation Energy. *Phys. Chem. Chem. Phys.* **2020**, *22* (20), 11467–11473. [IF: **3.676**]
17. Mahapatra, A.; Prochowicz, D.; Tavakoli, M. M.; **Trivedi, S.**; Kumar, P.; Yadav, P. A Review of Aspects of Additive Engineering in Perovskite Solar Cells. *J. Mater. Chem. A* **2020**, *8* (1), 27–54. [IF: **12.73**]
18. Prochowicz, D.; Tavakoli, M. M.; Alanazi, A. Q.; **Trivedi, S.**; Tavakoli Dastjerdi, H.; Zakeeruddin, S. M.; Grätzel, M.; Yadav, P. Charge Accumulation, Recombination, and Their Associated Time Scale in Efficient (GUA)_x(MA)_{1-x}PbI₃-Based Perovskite Solar Cells. *ACS Omega* **2019**, *4* (16), 16840–16846. [IF: **3.512**]
19. Kalam, A.; Al-Sehemi, A. G.; Mahapatra, A.; Verma, D.; **Trivedi, S.**; Pandey, M. K. Identification of Defects and Defect Energy Distribution in the Perovskite Layer of MAPbI₃-XCl_x Perovskite Solar Cell. *Mater. Res. Express* **2019**, *6* (10), 105510. [IF: **1.609**]
20. **Trivedi, S.**; Prasad, R. A Four-Way Catalytic System for Control of Emissions from Diesel Engine. *Sādhanā* **2018**, *43* (8), 1–13. [IF: **0.769**]

21. **Trivedi, S.;** Prasad, R.; Gautam, S. K. Design of Active $\text{NiCo}_2\text{O}_{4-\delta}$ Spinel Catalyst for Abatement of CO-CH₄ Emissions from CNG Fueled Vehicles. *AIChE J.* **2018**, *64* (7), 2632–2646. [IF:**3.993**]
22. **Trivedi, S.;** Prasad, R. Kinetics of Simultaneous Oxidation of CO-CH₄ over Pd-K Promoted $\text{NiCo}_2\text{O}_4/\gamma\text{-Al}_2\text{O}_3$ Catalyst. *Can. J. Chem. Eng.* **2018**, *96* (6), 1352–1359. [IF: **2.007**]
23. **Trivedi, S.;** Prasad, R. Choice of Precipitant and Calcination Temperature of Precursor for Synthesis of NiCo_2O_4 for Control of CO-CH₄ Emissions from CNG Vehicles. *J. Environ. Sci.* **2018**, *65*, 62–71. [IF: **2.86**]
24. **Trivedi, S.;** Prasad, R. Synthesis of K-Pd Doped $\text{NiCo}_2\text{O}_{4-\delta}$ by Reactive Calcination Route for Oxidation of CO-CH₄ Emissions from CNG Vehicles. *New J. Chem.* **2018**, *42* (6), 4142–4154. [IF: **3.591**]
25. **Trivedi, S.;** Prasad, R.; Chadha, S. Oxidation Kinetics of Propane-Air Mixture over NiCo_2O_4 Catalyst Emitted from LPG Vehicles. *Bull. Chem. React. Eng. Catal.* **2017**, *12* (2), 191–196. [IF: **1.54**]
26. **Trivedi, S.;** Prasad, R. Reactive Calcination Route for Synthesis of Active Mn-Co₃O₄ Spinel Catalysts for Abatement of CO-CH₄ Emissions from CNG Vehicles. *J. Environ. Chem. Eng.* **2016**, *4* (1), 1017–1028. [IF: **5.909**]