

Dr. Soumya B. N.

Permanent Address : Seashell, Malamkunnu
Kottikulum, Bekal (P.O.),
Kasaragod, Kerala-671318
Email id : soumyanaren@gmail.com



Area of specialisation: Material science, Solid state chemistry, Photocatalysis, Porous materials, Biomass conversion

Work / Research Experience

July 2026-	Guest Lecturer, NASC Kanhangad
July 2022-June 2024	Navakerala Post-Doctoral fellowship Department of Chemistry, Central University of Kerala
May 2019 to May 2022	Dr. D. S. Kothari-UGC Post-Doctoral Fellow Department of Chemistry, Central University of Kerala
Feb 2017 to Jan 2019	SERB-National Post-Doctoral Fellow Department of Chemistry, Central University of Kerala
June 2016 to Jan 2017	Guest Lecturer Department of Chemistry, Govt. College Kasaragod
Feb 2012 to Feb 2015	Senior Research Fellow CSIR-National Chemical Laboratory (NCL) Pune.
Feb 2010 to Feb 2012	Junior Research Fellow CSIR-National Chemical Laboratory (NCL) Pune

Doctoral / Masters Research

Ph.D. (Chemistry), Title: *Layered Solid State Compounds for photocatalytic water splitting*.
Awarded in 2016, Research Supervisor: Dr. R. Nandini Devi, CSIR-National Chemical Laboratory (NCL)-Pune

M.Sc. Project: Title: *Structure-property correlation in PNN-PZN-PZT ceramics*.
Research Supervision: **Dr. N. Raghu**, C-MET, Trichur, Jan. 2010 - April, 2010 (4 months).

Awards and Achievements

Awards and Honours

- ✓ Awarded Chief Minister's Navakerala Post-doctoral fellowship 2021
- ✓ Awarded Dr. D. S. Kothari-UGC Post-Doctoral Fellowship, May 2019
- ✓ Awarded SERB-National Post-Doctoral Fellowship, January 2017
- ✓ Awarded JRF(CSIR) - June 2009-11-21 (All India rank: 177)
- ✓ Qualified GATE Year: 2009 Percentile Score: 89.45

Patent

- **United States Patent**, Patent No.: **US 10,037,734 B2**, Date of Patent: 04 June 2019.
- **Indian Patent**, Patent No.: 596368, Date of Patent: 22 July 2026

International publications

1. T.V. Vrinda, M. G. Gopika, P. Aswin, **Soumya B. Narendranath**, A. Nikitha, N. J. Venkatesha, V. Ganesh and A. Sakthivel, Highly active Ni–Fe/ β -Mo₂C and Ni–Co/ β -Mo₂C catalysts derived from hydrotalcites via nitrogen atmosphere: Promising noble-metal-free catalysts for nitroarene and biomass derived molecule hydrogenation (2026), 50, 11663.
2. N. P. Nimisha, **Soumya B. Narendranath**, K. K. Shabana, C. P. Ansiya, C. K. Swetha, Anil Chandra Kothari, Adarsh Sahu, Rajaram Bal, A. Sakthivel, Decarboxylation of Fatty Acids to Fuel Additives Over Ruthenium Dispersed MWW Zeolite Framework, Sustainable Energy & Fuels (2026), 9, 5391
3. **Soumya B Narendranath**, R. Kumaravel, N. P. Nimisha, Pranav Prakash, N. J. Venkatesha, S. Muhamad Rafiq, and A. Sakthivel. "Heterogenization of N, N'-Bis (salicylidene)-1, 2-phenylenediaminocobalt (II) onto Functionalized SBA-15 for Oxidation of Alcohols." Journal of Organometallic Chemistry (2025): 123748.
4. KK Shabana, **Soumya B Narendranath**, NP Nimisha, A Sakthivel, Synergistically stabilized SAPO-37-tetragonal zirconia composites: a promising catalyst for ethyl levulinate synthesis, Chemical Communications 2025 61 (6), 1136-1139
5. KK Shabana, **Soumya B Narendranath**, NP Nimisha, NJ Venkatesha, A. Sakthivel, Temperature-programmed reduction method for stabilization of the inorganic framework of SAPO-37 materials: promising catalysts for MTBE production Chemical Communications 2025 60 (66), 8688-8691
6. **Soumya B. Narendranath**, Naroth P. Nimisha, Anil Chandra Kothari, Rajaram Bal, and Ayyamperumal Sakthivel. "Hydrotreating of m-cresol: A lignin derived phenolic compound, using ruthenium decorated zeolite- β ." Catalysis Communications (2024): 106895.
7. **Soumya B. Narendranath**, N. P. Nimisha, S. Namitha, K. Khadheejath Shabana, N. J. Venkatesha, Chamundi P. Jijil, and A. Sakthivel. Ruthenium loaded moderate acidic SAPO-11 for hydrogenation of aromatic derivatives, Journal of Porous Materials (2024): 1-10.
8. Nimisha, Naroth P., **Soumya B. Narendranath**, and Ayyamperumal Sakthivel. "In situ preparation of a nickel-oxy-hydroxide decorated ITQ-2 composite: a hydrodeoxygenation catalyst." Chemical Communications 60, no. 11 (2024): 1480-1483.
9. P Sahu, **Soumya B Narendranath**, A Sakthivel Current Materials Science: Formerly: Recent Patents on Materials Science 16, 416-430
10. P Aswin, **Soumya B Narendranath**, A Unni, S Balamurugan, NJ Venkatesha, 2023, Journal of Chemical Sciences 135 (4), 99
11. NP Nimisha, **Soumya B Narendranath**, V Ganesh, A Sakthivel, 2023, Catalysis Letters, 1-21
12. NV Sajith, S Suresh, M Bindu, **Soumya B Narendranath**, MRP Kurup, P Periyat, 2022, Visible light active Ni²⁺ doped CeO₂ nanoparticles for the removal of methylene blue dye from water Results in Engineering 16, 100664
13. D Joshy, **Soumya B. Narendranath**, YA Ismail, P Periyat, 2022, Recent progress in one dimensional TiO₂ nanomaterials as photoanodes in dye-sensitized solar cells, Nanoscale Advances 4 (24), 5202-5232
14. Sajith, N.V., Jose, S., **Soumya, B. Narendranath**, Kurup, M.R.P., Periyat, P. 2021. Visible light-driven photocatalytic degradation of methylene blue dye over bismuth-doped cerium oxide mesoporous nanoparticles, Environmental Science and Pollution Research, <https://doi.org/10.1007/s11356-020-10750-y>.

15. Jose, S., Joshy, D., **Soumya, B. Narendranath**, Periyat, P. 2019. Recent advances in infrared reflective inorganic pigments, *Solar Energy Materials and Solar Cells* 194, 7–27
16. Ullattil, S.G., **Soumya, B. Narendranath**, Periyat, P. 2019. Black TiO₂: A New Generation Photocatalyst in Visible Light-Active Photocatalysis Nanostructured Catalyst Design, Mechanisms, and Applications edited by Ghosh, S Wiley-VCH, Weinheim, ISBN: 978-3-527-34293-8) (Book Chapter).
17. Jose, S., **Soumya, B. Narendranath**, Joshy, D., Sajith, N.V., Kurup, M.R.P., Periyat, P. 2018. Low temperature synthesis of NIR reflecting bismuth doped cerium oxide yellow nano-pigments, *Materials Letters* 233, 82–85.
18. Ullattil, S.G., **Soumya, B. Narendranath**, Pillai, S.C., Periyat, P. 2018. Black TiO₂ Nanomaterials: A Review of Recent Advances, *Chemical Engineering Journal* 343, 708–736.
19. Sajith N. V., Jose, S., **Soumya B. Narendranath**, Periyat, P. 2018. Synthesis, characterization and photocatalytic study of Sm³⁺ doped mesoporous CeO₂ nanoparticles, in “Photocatalytic Nanomaterials for Environmental Applications” edited by Rajesh J.T., Gandhi, V, Vol. 27, Page:343, Material Research Forum LLC, USA, ISBN:978-1-945291-58-6. (Book Chapter).
20. Sajith N. V., **Soumya B. Narendranath**, Jose, S., Periyat, P. 2018. TiO₂ nanomaterials a future prospect in “Photocatalytic Nanomaterials for Environmental Applications” edited by Rajesh J.T., Gandhi, V, Vol. 27, Material Research Forum LLC, USA, ISBN:978-1-945291-58-6. (Book Chapter).
21. Beegam, M.S., **Soumya B. Narendranath**, Periyat, P. 2017. Tuning of selective solar photocatalysis by Mn²⁺ decorated nanocrystalline mesoporous TiO₂, *Solar Energy* 158, 774-781.
22. **Soumya B. Narendranath**, Thekkeparambil, S.V., George, L., Thundiyil, S., Devi, R.N. 2016. Photocatalytic H₂ evolution from water-methanol mixtures on InGaO₃(ZnO)_m with an anisotropic layered structure modified with CuO and NiO cocatalysts, *Journal of Molecular Catalysis A: Chemical* 415, 82-88.
23. **Soumya B. Narendranath**, Yadav, A.K., Ajithkumar, T.G., Bhattacharyya, D., Jha, S.N., Dey, K. K., Raja, T., Devi, N.R. 2014 Investigations into variations in local cationic environment in layered oxide series InGaO₃(ZnO)_m (m = 1–4), *Dalton Transaction*. 43, 2120– 2126.
24. **Soumya B. Narendranath**, Yadav, A.K., Bhattacharyya, D., Jha, S.N., Devi, R.N. 2014. Photocatalytic H₂ evolution from water-methanol system by anisotropic InFeO₃(ZnO)_m oxides without cocatalyst in visible light, *ACS Applied Materials& Interfaces* 6, 12321 – 12327.

Trainings underwent/ Seminar/Workshop attended

- Underwent training on various analytical instrumental techniques such as XRD, Autosorb 1C (for measuring surface area), UV spectrometer, TGA, DSC, I-V characterisation.
- Proficiency in computer applications (MS office and application software's), Learned software's for drawing and analysing crystal structures such as Diamond, GSAS, Expert Highscore etc.

- Attended two days national seminar on Solid State NMR held at National Chemical Laboratory Pune- 2012.
- Attended Catalysis symposium held at Indian Institute of Technology, Chennai on December 2010.
- Attended two days National Seminar held at Government College Kasaragod on Recent challenges and progress in chemistry on December 9-10, 2015.
- Attended and participated in internal seminars on various novel techniques and applications in the field of chemistry at National Chemical Laboratory during the period of February 2010 to December 2014.
- Attended three days national workshop on “Diffraction Techniques – X-ray and Electron diffraction” held at STIC, CUSAT on 7-9, February 2018.

Research Paper Presentation

1. Presented a research paper on “Sustainable Catalytic Strategies for Biomass Valorization Using Group VIII Metal-Modified Inorganic Framework materials” at 3rd International Conference on Earth & Environmental Science 2025 on 17-20 August 2025 held at Durban ICC, South Africa
2. Presented a research paper on “Group VIII metal containing zeolites: Potential for hydrotreating of biomass”, at National Workshop on Futuristic Catalysts and Catalytic Processes (NWFCPP-2024) on February 15-16th, Central University of Kerala.
3. Presented a research paper on “Hydrotreating of a Lignin Derived Phenolic Compound, over Group VIII metal loaded Large Pore Zeolite” at International Conference, Exhibition on Sustainable Chemistry & Engineering on September 14-16, 2023, Institute of Chemical Technology, Mumbai
4. Presented a research paper on “A study on photocatalytic activity of oxygen vacant ZnO nanomaterials” at 29th Swadeshi Science Congress held at CPCRI, Kasaragod on 26-02-2020.
5. Presented a research paper on “Nitrogen doped TiO₂-CuO nanocomposites for photocatalysis” NTAC-2019 held at S. H. College Thevara on 14th and 15th January 2019.
6. Presented a research paper on “Semiconducting metal oxides for energy and environmental applications” was given at RCPC-2018 held at Govt. College Kasaragod.
7. Presented a research paper on “Enhanced Photocatalysis of Sm³⁺ doped CeO₂ nanoparticles Towards Methylene Blue Dye Degradation” ICN 2018- Synthesis, Characterization and Potential Applications of Nanomaterials.
8. Presented a research paper on “layered InGaZnO₄ for photocatalytic water splitting under UV light irradiation” for TAPSUN conference at CLRI, Chennai held on September 2013.
9. Presented a research paper on "layered InGaO₃(ZnO)_m series of compounds for photocatalytic water splitting" for CATSYMP 2013 at Indian Institute of Chemical Technology, Hyderabad held on February 2013.
10. Presented a research paper on "layered InGa/FeO₃(ZnO)_m for photocatalytic water splitting" at National Chemical laboratory, Pune on science day held on February 2013.
11. Presented a research paper on "layered solid state compounds for solar energy utilization" at National Chemical laboratory, Pune on science day held on February 2012.