

Curriculum Vitae

Dr. SAKAR MOHAN *M.Sc., M.Tech., PhD*

Associate Professor

Centre for Nano and Material Sciences, Jain (Deemed-to-be University)

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Academic Positions

- **Associate Professor (2024 - Present):** Centre for Nano and Material Sciences, Jain (Deemed-to-be) University, Bangalore 562112, Karnataka, India.
- **Assistant Professor (2022 - 2024):** Centre for Nano and Material Sciences, Jain (Deemed-to-be) University, Bangalore 562112, Karnataka, India.
- **DST-INSPIRE Faculty (2017 - 2022):** Centre for Nano and Material Sciences, Jain (Deemed-to-be) University, Bangalore 562112, Karnataka, India.

Postdoctoral Research Experiences

- **Visiting Research Fellow (Oct'2022 - Feb'2023):** Dept. of Chemistry, Tokyo Institute of Technology, Tokyo 152-8550, Japan.
- **Postdoctoral Research Fellow (2016 - 17):** Dept. of Chemical Engineering, Laval University, Quebec G1V0A6, Canada.
- **Postdoctoral Research Fellow (2015 - 16):** National Centre for Nanoscience and Nanotechnology, University of Madras, Guindy Campus, Chennai 600025, Tamil Nadu, India.

Education

- **Ph.D. in Nanoscience and Nanotechnology (2011 - 15)**
 - **Institution:** National Centre for Nanoscience and Nanotechnology, University of Madras, Guindy Campus, Chennai 600025, Tamil Nadu, India.
 - **Thesis:** Investigation on the Fabrication of Rare Earth-Substituted and Silver Plasmon-Sensitized Nanostructured Particulates and Fibers of Bismuth Ferrite (BiFeO₃) and their Sunlight-Driven Photocatalytic Activities
- **M.Sc., M.Tech. in Nanoscience and Nanotechnology (2007 - 10)**
 - **Institution:** National Centre for Nanoscience and Nanotechnology, University of Madras, Guindy Campus, Chennai 600025, Tamil Nadu, India.
 - First Class with distinction
- **B.Sc. in Physics (2004 - 07)**
 - **Institution:** Department of Physics, G.T.N. Arts College, Dindigul 624003, India. Affiliated to Madurai Kamaraj University, Madurai, Tamil Nadu, India.
 - First Class with distinction

Research Projects (Completed: 3 Ongoing: 4)

1. **Title of the project** : **Design and development of photocatalytic metal oxynitride nanostructures for energy and environmental applications**

Funding agency : Department of Science and Technology (DST)

Period : 2017-22 (5 years)

Cost : Rs. 35,00,000 (~ 46933 USD)

Role : [Principal Investigator](#)

Project type : DST Inspire faculty grants

Status : Completed

2. **Title of the project** : **Design and development of photocatalytic membranes for simultaneous water disinfection and filtration**

Funding agency : Department of Science and Technology (DST)

Period : 2019-21 (2 years)

Cost : Rs. 52,95,692 (~71012 USD)

Role : [Principal Investigator](#)

Project type : Industrial collaboration - Water management

Status : Completed

3. **Title of the project** : **Nano/membrane technology-enabled atmospheric water generator integrated with concentrated solar PV modules**

Funding agency : Department of Science and Technology (DST)

Period : 2021-24 (3 years)

Cost : Rs. 3,78,15,112 (~513394 USD)

Role : [Principal Investigator](#)

Project type : Special call on technology development

Status : On-going

4. **Title of the project** : **Design and development of CsAX₃ (A=Pb/Sn; X=Cl, Br, I) perovskite nanocrystals as the emerging class of materials for multiplex biosensing**

Funding agency : Science & Engineering Research Board (SERB)

Period : 2019-22 (3 years)

Cost : Rs. 30,83,695 (~41350 USD)

Role : [Co-Principal Investigator](#)

Project type : Core Research Grant

Status : Completed

5.	Title of the project	: Development of dairy waste scum derived fatty acid methyl ester as a potential biofuel for industrial applications
	Funding agency	: Department of Science and Technology (DST)
	Period	: 2021-24 (3 years)
	Cost	: Rs. 58,36,246 (~78261 USD)
	Role	: Co-Principal Investigator
	Project type	: Special call on technology development
	Status	: On-going

6.	Title of the project	: Development of pilot scale coagulant-assisted ultrafiltration modules for the effective removal of reactive silica from ground water with zero wastage
	Funding agency	: Department of Science and Technology (DST)
	Period	: 2023-26 (3 years)
	Cost	: Rs. 92,63,786 (~111425 USD)
	Role	: Co-Principal Investigator
	Project type	: Special call on industrial waste water treatment
	Status	: On-going

7.	Title of the project	: Ternary superlattices of electrostatically stacked 2D materials as efficient bifunctional catalysts for overall water splitting
	Funding agency	: Vision Group on Science and Technology, Karnataka
	Period	: 2023-25 (2 years)
	Cost	: Rs. 30,00,000 (~36609 USD)
	Role	: Co-Principal Investigator
	Project type	: State government funded research project
	Status	: On-going

Awards/Honors/Recognitions

- **[Top 2% Most Influential Scientists \(2023\)](#)**: Appeared on the Stanford University list of the top 2% most influential scientists in the analysis of Indian researchers. <https://insights2techinfo.com/top-2-most-influential-scientists-single-year-in-2023-stanford-university-list-analysis-of-indian-researchers/>
- **[ISEES Young Scientist Award \(2023\)](#)**: Received the ISEES Young Scientist Award 2023 with citation, plaque and cash prize from the International Society for Energy, Environment, and Sustainability (ISEES), Indian Institute of Technology

Kanpur in recognition of the achievements/contributions in the fields of Energy, Environment and Sustainability. <https://isees.in/Young%20Scientists.htm>.

- **Matsumae International Foundation Fellow (2022):** Received the award of 'Matsumae International Foundation Fellow', Japan as a visiting scientist to visit the Tokyo Institute of Technology, Japan for short-term research from October 2022 to January 2023.
- **Top 2% scientist in the world (2022):** Recognized by Elsevier and Stanford University as one among the top scientists in percentile rank of 2%, *Ioannidis, John P.A. (2022), "September 2022 data-update for "Updated science-wide author databases of standardized citation indicators""*, Mendeley Data, V4, doi: 10.17632/btchxktzyw.4 <https://elsevier.digitalcommonsdata.com/datasets/btchxktzyw/4>
Table_1_Authors_singleyr_2021_pubs_since_1788_wopp_extracted_202209.xlsx
- **India's top 10000 scientist (2022 & 2023):** Recognized by AD (Alper-Doger) Scientific Index 2022 and 2023 as one of India's top 10000 scientists, which is a ranking and analysis system based on the scientific performance and the added value of scientific outputs; web: adscientificindex.com/scientist.php?id=516687.
- **Young Scientist Award (2021):** Received the award of "Dr. APJ Abdul Kalam Best Young Scientist Award 2020-21" by Bose Science Society, Tamil Nadu Scientific Research Organization, Tamil Nadu, India in recognition of the contribution in the field of Nanoscience and Nanotechnology.
- **Top 2% scientist in the world (2021):** Recognized by Elsevier and Stanford University as one among the top scientists in percentile rank of 2% in August 2021 data-update for "Updated science-wide author databases of standardized citation indicators" [Mendeley Data, V3, doi: 10.17632/btchxktzyw.3] <https://elsevier.digitalcommonsdata.com/datasets/btchxktzyw/3>;
Table_1_Authors_singleyr_2020_wopp_extracted_202108.xlsx.
- **Catalysts Guest Editor Award (2021):** Recognized with *Catalysts 2021 Guest Editor Award* for guest-editing a special issue entitled "Emerging Trends in TiO₂ Photocatalysis and Applications" for the journal *Catalysts* (MDPI, Switzerland) <https://www.mdpi.com/journal/catalysts/awards/1042>.
- **ChemComm Outstanding Reviewer (2020):** Recognized by the Editors as an Outstanding Reviewer for *ChemComm* in 2020, Royal Society of Chemistry (RSC) *Chem. Commun.*, **2021**, 57, 5735-5736.

- **J. Phys. D: Appl. Phys. Outstanding Reviewer (2019):** Recognized by the Editors as an Outstanding Reviewer for *J. of Phys. D: Appl. Phys.* in 2019, IOPscience.
- **BRICS Young Scientist (2019):** Selected by the Department of Science & Technology, Govt. of India (one of 20 participants among 450+ applicants across India) to participate as a Young Scientist in the 4th BRICS Young Scientist Conclave, held at Rio de Janeiro, Brazil during 6-8th November 2019.
- **Lindau Fellow (2019):** Selected by the Department of Science & Technology, Govt. of India to participate (as one of 580 young scientists from across the world) in the 69th Lindau Nobel Laureate Meetings held at Lindau, Germany during 30th June to 5th July 2019.
- **DST-INSPIRE Faculty Award (2017-22):** A five-year tenure track position awarded with research grants by the Department of Science & Technology, Govt. of India to start the independent research career.
- **CSIR-Senior Research Fellow (2011-14):** Awarded with senior research fellowship under a CSIR-sponsored major research project during PhD at University of Madras, India.

Professional Activities

- **Guest Editor: *Scientific Reports*, Springer Nature, Collections on "Ferroelectric Materials", 2024. [Active]**
- **Editorial Board Topic Editor: *Materials*, MDPI, 2021. [Active]**
- **Guest Editor: *Catalysts*, MDPI, Special Issue on "Emerging Trends in TiO₂ Photocatalysis and Applications", 2020. [Expired]**
- **Guest Editor: *SN Applied Sciences*, Springer Nature, "Frontiers in Materials from Basic Science to Real-time Applications", 2019. [Expired]**
- **Guest Editor: *Materials Today: Proceedings*, "International Conference on Green Methods for Separation, Purification and Nanomaterial Synthesis", 24-25th April 2018, Jain University, India. [Expired]**
- **Editorial Board Member: *Scientific Reports* (Springer Nature); *SN Applied Sciences* (Springer Nature); *BMC Research Notes* (Springer Nature); *Advances in Materials Science and Engineering* (Hindawi); *Frontiers in Nanotechnology* (Frontiers)**

- **Peer Reviewer:**
 - **Nature:** *Scientific Reports, npj Clean Water*
 - **ACS:** *The J. Physical Chemistry C, Industrial & Engineering Chemistry Research, ACS Applied Nano Materials*
 - **RSC:** *Chemical Communications, J. Materials Chemistry C, RSC Advances, Green Chemistry, Royal Society Open Science, Nanoscale, Chemical Science, New Journal of Chemistry, Catalysis Science & Technology, CrystEngComm, J. Mater. Chem. A, J. Mater. Chem. C, Nanoscale Advances*
 - **Elsevier:** *Materials Research Bulletin, Materials Letters, Int. J. Hydrogen Energy, J. of Colloid and Interface Science, EnergyChem, Chemosphere, Materials Science in Semiconductor Processing, Biocatalysis and Agricultural Biotechnology, Materials Today Communications, Applied Surface Science, Arabian J. of Chemistry, Materials Today: Proceedings, J. Physics and Chemistry of Solids, Int. J. of Biological Macromolecules, Chem. Eng. J., J. of Cleaner Production, Chem. Eng. Res. & Design*
 - **Wiley:** *ChemCatChem, ChemistrySelect, ChemSusChem, Asian J. of Organic Chemistry, Batteries & Supercaps, Phys. Status Solidi A, Chemistry - An Asian Journal, The Chemical Record, Advanced Energy and Sustainability Research, ChemNanoMat*
 - **Springer:** *Chemical Papers, SN Applied Sciences, Biotechnology Letters, SN Comprehensive Clinical Medicine, J. of Material Science: Materials in Electronics, J. of Nanostructure in Chemistry, J. Materials Research, Water, Air, & Soil Pollution, Optical and Quantum Electronics, Biomass Conversion and Biorefinery*
 - **IOPscience:** *Nanotechnology, J. of Physics: Condensed Matter, J. of Physics D: Applied Physics, Materials Research Express, Nano Express, 2D Materials, Physica Scripta*
 - **MDPI:** *Catalysts, Materials, Applied Sciences, Energies, Water, Molecules, Coatings, Nanomaterials, Lubricants, Crystals, Polymers, Sustainability, Life, Pharmaceutics, Bioengineering*
 - **Hindawi:** *Journal of Chemistry, International Journal of Energy Research*
 - **Taylor & Francis Online:** *Petroleum Science and Technology, Inorganic and Nano-Metal Chemistry*
 - **Lindau Nobel Laureate Meetings:** *Next Gen Science sessions*
 - **Other:** *Beilstein J. of Nanotechnology, Zeitschrift für Physikalische Chemie, Elsevier book proposals, book chapters, ACS book chapters*

Fellowships/Memberships

- Fellow : Bose Science Society, Tamil Nadu Scientific Research Organization (F833)
- Fellow : Scholars Academic and Scientific Society (SAS/FSASS/429)
- Life Member : National Academy of Sciences, India (NASI)
- Life Member : The Indian Science Congress Association (L41713)
- Life Member : Indian Physical Society (L-1174)
- Life Member : Electron Microscope Society of India (LM-2105)
- Life Member : Indian Society for Advancement of Mater. & Process Eng. (L-2209)
- Life Member : Indian Laser Association (LM1487)
- Life Member : Asian Polymer Association (L-680)
- Life Member : Association of Asia Pacific Physical Societies (IPA268WDMU)
- Life Member : Society for Materials Chemistry (LM-1412)
- Life Member : Asia Society of Researchers (R219093418)
- Member : International Association of Advanced Materials (121879122454)
- Member : American Chemical Society (30713050)
- Member : Royal Society of Chemistry (718664)

Other Experiences

- Post Graduate Diploma in Computer Applications, C language and Core Java
- Worked as a part-time tutor for a computer training Centre to teach the fundamentals of Computers, Internet, MS-Office, C language and Core Java

Current Research Group

- Dr. J. Santhosh Kumar (Postdoc, Photocatalysis)
- R. Mithun Prakash (PhD scholar, Photocatalytic oxynitrides)
- C. Ningaraju (PhD scholar, Biodiesel)
- K. Gayathri (PhD scholar, Photocatalytic membranes)
- M. Kanmani (PhD scholar, Supercapacitors)
- D. Vidya (PhD scholar, Atmospheric water harvesting)

- K. Govindaraju (Project Assistant, Atmospheric water harvesting)
- K. P. Anupamaraj (M.Sc. Project Student, Photocatalysis)

Former Group Members

- Dr. C. Pownraj (Postdoc, Atmospheric water harvesting, 2022-2023)
- Y. N. Teja (Research Assistant, 2D materials for photocatalysis, 2020-2022)
- P. Deekshith (M.Sc. Project Student, Biodiesel, 2021-23)
- P. P. Adarsh Chandran (M.Sc. Project Student, Bio-composites, 2020-22)
- S. Bharathkumar (M.Sc. Project Student, Bio-composites, 2019-21)
- V. Shweta (Intern, Bio-composites, Oct-Dec 2021)

Research Interests

- Photocatalysis/Photochemistry
- Biodiesel production/Bio-waste conversions
- Membrane technology for water purification
- Atmospheric water harvesting
- Environmental- and bio-sensors
- Supercapacitors and energy storage materials
- Bio-composite materials/Hyperthermia applications
- Chemical and physical processes for surface modifications
- Plasmonics/Surface Enhanced Raman Spectroscopy (SERS)
- Multiferroic/Multifunctional nanomaterials/Magnetic materials
- Metal/Metal oxides/Graphene/MOFs/MXenes/Chalcogenides
- Hybrid/Anisotropic nanostructures
- Organic-inorganic/All-inorganic perovskite nanostructures
- Nitridation, Electrospinning, Sol-gel, Auto-combustion, Chemical reduction, Spin coating, Anodization, Precipitation, Hydrothermal

International & National Collaborators

- Prof. Trong-On Do, Laval University, Canada
- Prof. Osamu Ishitani, Tokyo Institute of Technology, Japan

- Prof. Luyi Sun, University of Connecticut, USA
- Prof. Seeram Ramakrishna, National University of Singapore, Singapore
- Prof. Suresh Valiyaveetil, National University of Singapore, Singapore
- Prof. V. V. Srinivasu, University of South Africa, South Africa
- Dr. Umakanta Jena, New Mexico State University, USA
- Dr. Wee-Jun Ong, Xiamen University, Malaysia
- Dr. Juhana Jaafar, Universiti Teknologi Malaysia, Malaysia
- Dr. Lau Woei Jye, Universiti Teknologi Malaysia, Malaysia
- Dr. Chaudhery Mustansar Hussain, New Jersey Institute of Technology, USA
- Prof. Tamer Zaki Sharara, Egyptian Petroleum Research Institute, Egypt
- Prof. M. V. Shankar, Yogi Vemana University, India
- Dr. Samuel L. Rokhum, National Institute of Technology Silchar, India
- Dr. K. N. Yogalakshmi, Central University of Punjab, India
- Dr. A. Murali, CSIR-Central Institute of Plastics Engineering & Technology, India

Publication Metrics

- Papers in journals : **123**
- National/International Patents : **02**
- Edited Books : **03**
- Invited book chapters : **17**
- Other general/research articles : **06**
- Papers in conferences : **101**
- Best paper awards in conferences : **17**

List of Publications in Peer Reviewed International Journals

1. K. V. Yatish, C. Ningaraju, S. H. Lalithamaba, **M. Sakar**, R. Geetha Balakrishna, Demonstrating photocatalytic esterification as a potential strategy to improve the properties of feedstock oil derived from dairy waste scum for biodiesel production, *Energy Convers. Manag.*, 2024. (Accepted)

2. S. Bharathkumar, A. Murugan, W. C. Mary Anne, S. Muthamizh, G. Kavitha, N. A. Rashid, S. Babu, V. Hector, **M. Sakar**, Z-scheme configured iron oxide/g-C₃N₄ nanocomposite system for solar-driven H₂ production through water splitting, *Appl. Catal. O: Open*, **2024**, 206915.
3. K. Gayathri, K. Vinothkumar, **M. Sakar**, R. Geetha Balakrishna, Synergy of ligands in tailoring the photocatalytic properties of zirconium metal-organic framework-impregnated membranes for water treatment, *Ind. Eng. Chem. Res.*, **2024**, 63, 6743-6753.
4. T. H. C. Nguyen, C. H. N. Nguyen, T. H. Le, P. Singh, P. Raizada, **M. Sakar**, V. Dao, T. V. Nguyen, S. Y. Kim, P. N. Tri, Q. V. Le, C. C. Nguyen, Insights into the state-of-the-art developments in active-sites engineering for electrocatalytic reduction of nitrate (NO₃⁻) to green ammonia (NH₃), *Sustain. Mater. Techno.*, **2024**, 40, e00917.
5. K. Gayathri, K. Vinothkumar, **M. Sakar**, R. Geetha Balakrishna, Manifestation of UiO-66-Zr MOF-enabled photocatalytic membranes for successive separation and degradation of dye mixtures in water remediation, *J. Environ. Chem. Eng.*, **2024**, 12, 112490.
6. M. Kanmani, S. Bharathkumar, C. Bavatharani, V. Hector, **M. Sakar**, Morphological impact of perovskite-structured lanthanum cobalt oxide (LaCoO₃) nanoflakes toward supercapacitor applications, *ACS Appl. Nano Mater.*, **2024**.
7. S. Ao, G. Shiva Prasad, M. Selvaraj, B. Rajender, A. Q. Noora, **M. Sakar**, L. R. Samuel, Transesterification of Jatropha curcas oil using highly porous sulfonated biochar catalyst: Optimization and characterization dataset, *Data in Brief*, **2024**, 53, 110096.
8. R. Vijayarangan, **M. Sakar**, M. Selvaraj, M. A. Assiri, R. Ilangovan, L. R. Samuel, Defect engineered N-doped black-V₂O₅ nanostructures for hydrogen production via solar-catalytic water splitting in the presence of different sacrificial agents, *Surf. Interfaces*, **2024**, 45, 103838.
9. R. Vijayarangan, **M. Sakar**, M. Selvaraj, M. A. Assiri, R. Ilangovan, Surface-engineered anisotropic g-C₃N₄ photocatalysts via green-exfoliation for visible light-driven water remediation, *Surf. Interfaces*, **2024**, 44, 103782.
10. S. Ao, G. Shiva Prasad, M. Selvaraj, B. Rajender, A. Q. Noora, **M. Sakar**, L. R. Samuel, Active sites engineered biomass-carbon as a catalyst for biodiesel

- production: Process optimization using RSM and life cycle assessment, *Energy Convers. Manag.*, **2024**, 300, 117956.
11. V. N. Rao, H. Kwon, P. Ravi, U. Bhargava, M. Nagaveni, Y. Lee, M. Sathish, **M. Sakar**, M. M. Kumari, M. V. Shankar, K. Kim, C. W. Ahn, J. M. Yang, ZnS/ZnSe heterojunction photocatalyst for augmented hydrogen production: experimental and theoretical insights, *Int. J. Hydrog. Energy*, **2024**, 51, 524-539.
 12. P. C. Nethravathi, D. Suresh, M. V. Manjula, S. Devaraja, **M. Sakar**, Ag-Cu₂O decorated reduced graphene oxide nanocomposite for photocatalytic water splitting, methylene blue dye degradation, electrochemical nitrite sensing, photoluminescence and selected biological applications, *Biomass Conv. Bioref.*, **2024**, 14, 5711–5734.
 13. R. Mithun Prakash, T. A. Quach, U. Bharagav, K. Manjunatha, M. M. Kumari, M. V. Shankar, S. Y. Wu, Trong-On Do, **M. Sakar**, Mechanistic insights into the phase formation of an atypical iron oxynitride (Fe_xO_yN_z) system and its multifunctional photocatalytic applications, *ACS Sustain. Chem. Eng.*, **2023**, 11, 17272–17284.
 14. R. Mithun Prakash, T. A. Quach, U. Bharagav, K. Sanath, Y. P. Fu, M. M. Kumari, M. V. Shankar, Trong-On Do, **M. Sakar**, Phase engineering of titanium oxynitride system and its solar light-driven photocatalytic dye degradation, H₂ generation, and N₂ fixation properties, *ACS Sustain. Chem. Eng.*, **2023**, 11, 15192-15206.
 15. K. V. Yatish, R. Mithun Prakash, R. Shwetharani, H. R. Chandan, **M. Sakar**, R. Geetha Balakrishna, Developments in titanium-based alkali and alkaline earth metal oxide catalysts for sustainable biodiesel production: A review, *Chem. Rec.*, **2023**, 23, e202300277.
 16. P. Sahariya, A. Murali, **M. Sakar**, A. Lakshminarayanan, S. Sekar, M. Devendiran, R. Redrouthu, S. S. Han, In-vitro anti-prostate adenocarcinoma and lung cancer studies of phenoxyaniline blocked poly(methyl methacrylate) based nanocomposites via controlled radical polymerization, *Nanoscale Adv.*, **2023**, 5, 5870-5879.
 17. Y. N. Teja, **M. Sakar**, Comprehensive insights into the family of atomically thin 2D-materials for diverse photocatalytic applications, *Small*, **2023**, 2303980.
 18. V. L. R. Joseph, H. Gopinath, **M. Sakar**, G. Baskar, L. Hui, C. Fang, B. Sanjay, L. R. Samuel, Microwave-assisted biodiesel production using ZIF-8 MOF-derived nanocatalyst: A process optimization, kinetics, thermodynamics and life cycle cost analysis, *Energy Convers. Manag.*, **2023**, 292, 117418.

19. C. Ningaraju, K. V. Yatish, R. Mithun Prakash, **M. Sakar**, R. Geetha Balakrishna, Gasoline pre-treated feedstock for the production of biodiesel with improved physicochemical properties, *Biomass Convers. Biorefin.*, **2023**, 13, 8351-8360.
20. T. A. Quach, N. G. Vishnu, J. Becerra, D. T. Nguyen, J. M. E. Ahad, **M. Sakar**, Trong-On Do, Z-scheme heterojunction of chemically integrated COF-366-Co/UiO-66-NH₂ MOFs nanocomposites for selective production of CO via CO₂ solar-drive photoreduction, *Catal. Today*, **2023**, 421, 114218.
21. K. G. Jesna, K. Gayathri, P. Altaf, **M. Sakar**, R. Geetha Balakrishna, Binding of CsPbBr₃ nanocrystals to MOF-5 for detection of cadmium ions in aqueous media, *ACS Appl. Nano Mater.*, **2023**, 6, 9464-9474.
22. M. Basir, K. V. Yatish, S. S. A. Talesh, E. Hossein, **M. Sakar**, R. Geetha Balakrishna, A novel biomass derived activated carbon mediated AC@ZnO/NiO bifunctional nanocatalyst to produce high-quality biodiesel from dairy industry waste oil: CI engine performance and emission, *Chem. Eng. J.*, **2023**, 467, 143399.
23. V. R. Kattimani, K. V. Yatish, K. Pramoda, **M. Sakar**, R. Geetha Balakrishna, Acacia furnesiana plant as a novel green source for the synthesis of NiFe₂O₄ magnetic nanocatalyst and as feedstock for sustainable high quality biofuel production, *Fuel*, **2023**, 348, 128549.
24. R. Mithun Prakash, T. A. Quach, U. Bharagav, M. Mamatha Kumari, M. V. Shankar, Trong-On Do, **M. Sakar**, Observation of inherited plasmonic properties of TiN in titanium oxynitride (TiO_xN_y) for solar-drive photocatalytic applications, *Environ. Res.*, **2023**, 229, 115961.
25. G. N. Vishnu, T. A. Quach, B. Jorge, **M. Sakar**, A. Jason, B. François, Trong-On Do, Au-nanoparticles anchored hollow nanospheres of single atomized porphyrin-covalent organic framework hybrid for boosting photoreduction of CO₂ under solar irradiation, *J. Phys. Chem. C*, **2023**, 127, 7929-7937.
26. M. Kanmani, J. Yesuraj, K. Kibum, **M. Sakar**, Electrochemical performance of chemically integrated N-doped carbon dots/Bi₂MoO₆ nanocomposites for symmetric supercapacitors, *Energy & Fuels*, **2023**, 37, 6841-6853.
27. G. N. Vishnu, B. Jorge, **M. Sakar**, A. Jason, B. François, Trong-On Do, Cobalt doped MoS₂-integrated hollow structured covalent organic framework (COF) nanospheres for the effective photoreduction of CO₂ under visible light, *Energy & Fuels*, **2023**, 37, 2329-2339.

28. K. Vinothkumar, C. Lavanya, **M. Sakar**, R. Geetha Balakrishna, Nature-inspired photoactive metal–organic framework nanofiber filters for oil–water separation: conserving successive flux, rejection, and antifouling, *Ind. Eng. Chem. Res.*, **2023**, *62*, 1085-1098.
29. K. Rokesh, **M. Sakar**, Trong-On Do, Integration of aminosilicate functionalized-fullerene (C₆₀) QDs on bismuth vanadate (BiVO₄) nanolayers for the photocatalytic degradation of pharmaceutical pollutants, *Catal. Today*, **2023**, *407*, 252-259.
30. K. V. Yatish, B. R. Omkaresh, V. R. Kattimani, H. S. Lalithamba, **M. Sakar**, R. Geetha Balakrishna, Solar energy-assisted reactor for the sustainable biodiesel production from Butea monosperma oil: Optimization, kinetic, thermodynamic and assessment studies, *Energy*, **2023**, *263*, 125768.
31. P. C. Nethravathi, M. V. Manjula, S. Devaraja S, **M. Sakar**, D. Suresh, Eco-friendly preparation of Bi₂O₃, Ag-Bi₂O₃ and Ag-Bi₂O₃-rGO nanomaterials and their photocatalytic H₂ evolution, dye degradation, nitrite sensing and biological applications, *J. Photochem. Photobiol. A Chem.*, **2023**, *435*, 114295.
32. S. Akhi, R. Mithun Prakash, J. Mohammed, A. Mabkhoot, H. Farid, **M. Sakar**, R. Geetha Balakrishna, Manifestation of enhanced photovoltaic performance in eco-friendly AgBiS₂ solar cells using titanium oxynitride as electron transport layer, *Energy & Fuels*, **2022**, *36*, 14393-14402.
33. B. Satheesh kumar, A. Swetha, S. Chitra, R. Ramya, Y. Ravi Kumar, M. Selvaraj, H. A. Ghramh, M. A. Assiri, **M. Sakar**, Two dimensional (2D) MXenes as an emerging class of materials for antimicrobial applications: properties and mechanisms, *J. Environ. Chem. Eng.*, **2022**, *10*, 108663.
34. B. Jorge, G. N. Vishnu, **M. Sakar**, D. T. Nguyen, Trong-On Do, In-situ integrated plasmonic TiN@ZIF-67 composites for the photoreduction of CO₂ into solar fuels: Insights into their plasmonic interaction and mechanism, *ChemCatChem*, **2022**, *14*, e202200994.
35. C. Anis, D. T. Nguyen, **M. Sakar**, Trong-On Do, In-situ Ni₂P-integrated black phosphorus nanosheets for efficient photocatalytic H₂ evolution, *ACS Appl. Nano Mater.*, **2022**, *5*, 13078-13089.
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- solar-driven degradation of dye molecules, *Colloids Surf. A Physicochem. Eng. Asp.*, **2022**, 653, 129992.
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National/International Patents

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Books Edited

1. R. Geetha Balakrishna, **M. Sakar**, T. Zaki Sharara (Eds), *Developments in Biodiesel: Feedstock, Production, and Properties*, **2024**, pp370, *Royal Society of Chemistry*, ISBN-13: 9781837670604.
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