

Dr. Ashish Kumar



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Education : Ph.D.(Chemistry) from Indian Institute of Technology Mandi, Himachal Pradesh, India in 2021.
M.Phil. (Chemistry) from Himachal Pradesh University Shimla, Himachal Pradesh, India in 2016.
M.Sc. (Chemistry) from Himachal Pradesh University Shimla, Himachal Pradesh, India in 2016.

Research Interests:

- Heterogeneous catalysis
- Materials synthesis and characterization
- Photocatalysis
- Energy applications (H₂ evolution and N₂ fixation)
- Environmental remediation (Wastewater treatment)

Selected Publications:

- **A. Kumar;** Y. Singla; M. Sharma; A. Bhardwaj; V. Krishnan. Two Dimensional S-scheme Bi₂WO₆-TiO₂-Ti₃C₂ Nanocomposites for Efficient Degradation of Organic Pollutants Under Natural Sunlight. *Chemosphere*, **2022**, *308*, 136212.
- **A. Kumar;** S. Kashyap; M. Sharma; V. Krishnan. Tuning the Surface and Optical Properties of Graphitic Carbon Nitride by Incorporation of Alkali Metals (Na, K, Cs and Rb): Effect on Photocatalytic Removal of Organic Pollutants. *Chemosphere* **2022**, *287*, 131988.
- **A. Kumar;** M. Kumar; V. N. Rao; M. V. Shankar; S. Bhattacharya; V. Krishnan. Unraveling the Structural and Morphological Stability of Oxygen Vacancy Engineered Leaf-Templated CaTiO₃ towards Photocatalytic H₂ Evolution and N₂ Fixation Reactions. *Journal of Materials Chemistry A* **2021**, *9*, 17006-17018.
- **A. Kumar;** V. Krishnan. Vacancy Engineering in Semiconductor Photocatalysts: Implications in Hydrogen Evolution and Nitrogen Fixation Applications. *Advanced Functional Materials* **2021**, *31*, 2009807.
- **A. Kumar;** A. Kumar; V. Krishnan. Perovskite Oxide Based Materials for Energy and

Environment-Oriented Photocatalysis. *ACS Catalysis* **2020**, *10*, 10253-10315.

- **A. Kumar**; V. N. Rao; A. Kumar; M. V. Shankar; V. Krishnan. Interplay between Mesocrystals of CaTiO₃ and Edge Sulfur Atom Enriched MoS₂ on Reduced Graphene Oxide Nanosheets: Boosted Photocatalytic Performance under Sunlight Irradiation. *ChemPhotoChem***2020**, *4*, 427-444.
- **A. Kumar**; V. N. Rao; A. Kumar; A. Mushtaq; L. Sharma; A. Halder; S. K. Pal; M. V. Shankar; V. Krishnan. Three-Dimensional Carbonaceous Aerogels Embedded with Rh-SrTiO₃ for Enhanced Hydrogen Evolution Triggered by Efficient Charge Transfer and Light Absorption. *ACS Applied Energy Materials***2020**, *3*, 12134–12147.
- **A. Kumar**; S. Kumar; V. Krishnan. Perovskite-based materials for photocatalytic environmental remediation (Chapter 5) in *Nanophotocatalysis and Environmental Applications: Materials and Technology*, Inamuddin, G. Sharma, A. Kumar, E. Lichtfouse and A. M. Asiri (Eds.), Springer Publishers, Switzerland, **2019**, *1*, 139-165.
- **A. Kumar**; C. Schuerings; S. Kumar; A. Kumar; V. Krishnan. Perovskite-Structured CaTiO₃ Coupled with g-C₃N₄ as a Heterojunction Photocatalyst for Organic Pollutant Degradation. *Beilstein Journal of Nanotechnology* **2018**, *9*, 671-685.
- **A. Kumar**; S. Kumar; A. Bahuguna; A. Kumar; V. Sharma; V. Krishnan. Recyclable, Bifunctional Composites of Perovskite Type N-CaTiO₃ and Reduced Graphene Oxide as an Efficient Adsorptive Photocatalyst for Environmental Remediation. *Materials Chemistry Frontiers***2017**, *1*, 2391-2404.