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List of Patents, Publications, and Book Chapters

List of Patents

1. Ashish Kumar Mishra and **Prince Kumar Maurya**, *An Electrolyzer for Electrochemical Water Splitting*, **Indian Patent Application** 202411005013, Date- 24-01-2024.
2. Ashish Kumar Mishra and **Prince Kumar Maurya**, *A Molybdenum Diselenide Nanostructured Cathode Based Rechargeable Zinc Air Battery*, **Indian Patent Number** 531211, Date- 31-03-2024, **Granted**

List of Publications

1. **Prince Kumar Maurya**, Shanu Mishra and Ashish Kumar Mishra*, Ni-Fe/Co-Fe Oxide-MoSe₂ Hybrid Nanostructures as Novel Electrocatalysts for High-Performance Rechargeable Zinc–Air Batteries, **Journal of Physical Chemistry Letters**, 2024, 15, 1246–1253.
2. **Prince Kumar Maurya**, Shanu Mishra and Ashish Kumar Mishra, Bifunctional In-Situ Grown Vertically Oriented MoSe₂ Over Different Substrates for Water Splitting, **ACS Applied Energy Materials**, 2024, 7, 2, 487-498.
3. **Prince Kumar Maurya**, Shanu Mishra and Ashish Kumar Mishra, MoSe₂ and NiCo₂O₄/NiO Based Hybrid Nanostructure as Novel Electrocatalyst for High-Performance Rechargeable Zinc-Air Battery, **Electrochimica Acta**, 2023, 439, 141689.
4. Kundan Kumar Mishra*, **Prince Kumar Maurya*** and Ashish Kumar Mishra, Dual electrolyte based aluminium air battery using NiCo₂O₄MoSe₂ hybrid nanocomposite, **International Journal of Hydrogen Energy**, 2024, 69, 252-260 (***equally contribution**)
5. Rohit Kumar Gupta*, **Prince Kumar Maurya*** and Ashish Kumar Mishra, Advancements in Rechargeable Zn–Air Batteries with Transition-Metal Dichalcogenides as Bifunctional Electrocatalyst, **ChemPlusChem**, e202400278 (*** equal contribution**)
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9. **Prince Kumar Maurya** and Ashish Kumar Mishra*, Ni decorated MoSe₂ as High-performance Bifunctional Electrocatalyst for Alkaline Electrolyzer, **under review**.
10. Antima Pandey, **Prince Kumar Maurya** and Ashish Kumar Mishra, Effect of Graphitization and Activation on Vegetable Oil Derived Carbon Soot for Improve Zinc Ion Hybrid Capacitor, **under review**.

Book Chapters

- 1) **Prince Kumar Maurya** and Ashish Kumar Mishra, **Chapter 8: Carbon and TMDs Based Air Cathode for Metal-Air Battery**, **Book:** Carbon and TMDs Nanomaterials for Energy Applications, **Publisher:** World Scientific Publishing Company (2024), **ISBN:** 978-981-12-8339-0, **Pages:** 71 - 106, 2024.
- 2) Rohit Kumar Gupta, **Prince Kumar Maurya** and Ashish Kumar Mishra, **Chapter 5: Carbon and TMDs Based Nanomaterials for Hydrogen Production**, **Book:** Carbon and TMDs Nanomaterials for Energy Applications, **Publisher:** World Scientific Publishing Company (2024), **ISBN:** 978-981-12-8339-0, **Pages:** 71 - 106, 2024.

Schools/Workshops/Conferences Attended

- 1) **Prince Kumar Maurya** and Ashish Kumar Mishra*, The International Conference on Beyond Fossil Fuels: The Future of Alternative Energy Technologies (**BFAT**), **July 2022**, IIT (BHU), Varanasi, India “*MoSe₂ nanosheets as Electrocatalyst for Oxygen Evolution Reaction*” (Poster Presentation)
- 2) **Prince Kumar Maurya** and Ashish Kumar Mishra*, 6th International Conference on Nanoscience and Nanotechnology (**ICONN-2021**), SRMIST, India, **February 2021**, “Multiwalled Carbon Nanotubes Grown Over Iron Nanocatalyst for Solid State Supercapacitors” (Poster Presentation)
- 3) **Prince Kumar Maurya** and Ashish Kumar Mishra*, International Conference on Advanced Materials and Nanotechnology (**ANM-2020**), Noida India, **February 2020**, C-136, “Synthesis of Multiwalled Carbon Nanotubes Over Iron Nanocatalyst for Supercapacitor Applications” (Poster Presentation)
- 4) **Prince Kumar Maurya**, Shanu Mishra and Ashish Kumar Mishra*, National Symposium on Contemporary Trends and Future Prospects of Functional Materials (**CTFM-2019**), BHU, Varanasi India, **December 2019**, “Multiwalled Carbon Nanotubes Based Solid State Symmetric Supercapacitor” (Poster Presentation).
- 5) **Prince Kumar Maurya**, Faculty Development Programme on "Materials Characterization" **September, 2022** organized by IIT Roorkee, Uttarakhand.
- 6) **Prince Kumar Maurya**, Lectures-workshop entitled on Recent Advances in Interdisciplinary Chemical Sciences (**RAICS-2022**)" via online mode (Cisco Webex) from **May, 2022** organized by Banaras Hindu University, Varanasi
- 7) **Prince Kumar Maurya**, Online workshop on “Accelerating Hydrogen and Fuel Cell Technology” organized by CFCT -ARCI, Chennai on **Oct. 2020**.
- 8) **Prince Kumar Maurya**, Indo-UK Workshop on “Valorisation of agri-waste for energy and nutrient recovery” **Jan 2020**, organised by IIT (BHU), Varanasi
- 9) **Prince Kumar Maurya**, Workshop program on “LaTex for Beginner” jointly organized by IEEE IAS student chapter & IEEE student chapter on **Oct. 2018**.