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Appendix

Publications included in Thesis

- 1) **Rashid M. Ansari**, Shubham Chamola and Shahab Ahmad. “Ruddlesden-Popper 2D Perovskite-MoS₂ Hybrid Heterojunction Photocathodes for Efficient and Scalable Photo-Rechargeable Li-Ion Batteries.” *Small* **2024**, 2401350, 1–13. ([Link](#))
- 2) **Rashid M. Ansari**, Akshay D. Salunke, Mohammad Rahil and Shahab Ahmad. “Strong Photocurrent from Solution-Processed Ruddlesden–Popper 2D Perovskite–MoS₂ Hybrid Heterojunctions.” *Adv. Mater. Interfaces* **2023**, 10 (10), 2202170. ([Link](#))
- 3) **Rashid M. Ansari**, Abhishek Yadav, Sarvar Singh, Bahaaeddin Irziqat, Chrysoula Aivalioti, Renqian Zhou, Mutalifu Abulikemu, Ameer Azam, Shadi Fatayer and Shahab Ahmad. “Additive Engineering of Ruddlesden Popper Perovskites with MXene Nanoflakes: Toward Enhanced Photoresponsivity, Detectivity and Stability.” *ACS Mater. Lett.* **2025**, 7, 2115–2124. ([Link](#))
- 4) **Rashid M. Ansari**, Abhishek Yadav and Shahab Ahmad. “Role of Smaller Organic Cation in the Optoelectronic Properties of Ruddlesden-Popper Perovskites.” *Manuscript Under Preparation*
- 5) **Rashid M. Ansari**, Shubham Chamola and Shahab Ahmad. “Hybrid Heterojunctions based Photo-Rechargeable Li-Ion Batteries.” *TechScape: The Science, Technology and Education Journal: IITJ* (**2024**) ([Link](#))

Publications not included in Thesis

- 1) Mohammad Rahil, **Rashid M. Ansari**, Shahab Ahmad and S. S. Islam. “Nanostructured Ruddlesden-Popper-Layered Lead Bromide Perovskites with Stable and Selected Wavelength for Photodetection Applications.” *ACS Appl. Nano Mater.* **2023**, 6 (7), 5187–5199. ([Link](#))
- 2) Mohammad Rahil, **Rashid M. Ansari**, Chandra Prakash, S. S. Islam, Ambesh Dixit and Shahab Ahmad. “Ruddlesden–Popper 2D Perovskites of Type (C₆H₉C₂H₄NH₃)₂(CH₃NH₃)_{n-1}Pb_nBr_{n+1} (n = 1–4) for Optoelectronic Applications.” *Sci. Rep.* **2022**, 12 (1), 2176. ([Link](#))

List of Conferences and Workshops

- 1) **Rashid M. Ansari** and Shahab Ahmad. “Wavelength Selective Photodetection from Ruddlesden-Popper-Lead Bromide Perovskites.” International Conference on Hybrid Halide Perovskite-2023 (HyPe-2023), Indian Association for the Cultivation of Science, Kolkata, 22-23 December **2023**. (*Poster Presentation; International Conference*)
- 2) Abhishek Yadav, **Rashid M. Ansari** and Shahab Ahmad. “Photovoltaic Assisted Bias-free H₂ Production.” Industry Day-2023 (Theme: Hydrogen Economy), Indian Institute of Technology Jodhpur, 3-4 February **2023**. (*Poster Presentation; National Conference; Best Poster Award*)

- 3) **Rashid M. Ansari** and Shahab Ahmad. “Ruddlesden Popper Perovskite-MoS₂ Hybrid Heterojunctions based Stable Lithium-Ion Batteries.” National Conference on Energy Materials & Devices (NC-EMAD-2022), Indian Institute of Technology Jodhpur, 16-18 December **2022**. (**Oral Presentation; National Conference**)
- 4) **Rashid M. Ansari**, Mohammad Rahil and Shahab Ahmad. “Investigation of 2D Ruddlesden-Popper Perovskites for Optoelectronic Devices.” Energy Storage and Conversion, AIP Publishing, 4-6 August **2021**. (**Poster Presentation- virtual, International Conference**) ([Link](#))
- 5) **Rashid M. Ansari** and Shahab Ahmad. “Ruddlesden-Popper Perovskite-MoS₂ Hybrid Heterojunctions for Stable and Efficient Self-powered Photodetectors.” European Materials Research Society (E-MRS), Warsaw University of Technology- Poland, 16-19 September **2024**. (**International Conference; Accepted for Oral Talk**)
- 6) **Rashid M. Ansari** and Shahab Ahmad. “Ruddlesden-Popper perovskite-MoS₂ hybrid heterojunctions photocathode for Stable and Efficient Photo-Rechargeable Batteries.” European Materials Research Society (E-MRS), Warsaw University of Technology- Poland, 16-19 September **2024**. (**International Conference; Accepted for Oral Talk**)
- 7) **Rashid M. Ansari**. “Indian Nanoelectronics User’s Programme – Idea to Innovation (INUP – izi).” Indian Institute of Technology, Madras, 21-22 August **2023**. (**Virtual**)

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Ending note for my supervisor

I am grateful to have your mentorship, and I am confident that the skills, knowledge, and values I have received will help me make significant contributions to science and society. I look forward to keeping in touch and hoping to make you proud as I begin my academic and professional journey. Thank you very much once again for everything.
