

Publications, Patents, and Conference Presentations

Publications in peer-reviewed journals

1. **Vivek Kumar Singh**, Prachi Jain, Subrata Panda, Biplob Kumar Kuila, Sudhagar Pitchaimuthu, and Santanu Das. Sulfonic acid/Sulfur trioxide ($\text{SO}_3\text{H}/\text{SO}_3$) functionalizations in two-dimensional MoS_2 nanosheets for high-performance photocatalysis of organic pollutants. *New Journal of Chemistry*, 2022, 46, 13636-13642. (*Impact Factor: 3.925*)
2. **Vivek Kumar Singh**, Bratindranath Mukherjee, S. Assa Aravindh, and Santanu Das. SO_3H functionalized MoS_2 nanosheets for Hydrogen evolution reaction. *Applied Surface Science*, 2022, SSRN Article, DOI: 10.2139/ssrn.4168541. (*Impact Factor: 7.392*)
3. **Vivek Kumar Singh**, Urwashi Gupta, Bratindranath Mukherjee, Sayan Chattopadhyay Santanu Das. MoS_2 Nanosheets on $\text{MoNi}_4/\text{MoO}_2$ Nanorod for Hydrogen evolution. *ACS Applied Nano Materials*, 2021, 4, 1, 886–896. (*Impact Factor: 6.14*)
4. Dibyendu Kumar Ghosh, Anupam Nandi, Sukanta Bose, Gourab Das, Arindam Kole, Sumita Mukhopadhyay, **Vivek Kumar Singh**, Uttam Sharma, Santanu Das, Nillohit Mukherjee, Pseudostoichiometric and Oxygen Deficient MoO_x for Efficient Sensing of H_2S and CO at Relatively Low Operating Temperature and Analyte Concentrations. *Surfaces and Interfaces*, 2022, DOI: 10.1016/j.surfin.2022.102261. (*Impact Factor: 6.137*)
5. JinKiong Ling, Chelladurai Karuppiah, Santanu Das, **Vivek Kumar Singh**, Izan Izwan Misnon, Mohd Hasbi Ab Rahim, Shengjie Peng, Chun-Chen Yang, and Rajan Jose, Quasi-Anisotropic Benefits in Electrospun Nickel-Cobalt-Manganese Oxide Nano-Octahedron as Anode for Lithium-ion Batteries. *New Journal of Chemistry*, 2022, 46, 9799-9810. (*Impact Factor: 3.925*)

6. Shamima Akhter, Nurul Khairiyyah Mohd Zain, Md. Shalauddin, **Vivek Kumar Singh**, Izan Izwan Misnon, Rajendra K Shaema, Santanu Das, Wan J Basirun, Mohammad R Johan and Rajan Jose. A tri-metallic Co-Ni-Cu based metal-organic framework as an efficient biosensor for the anticancer drug nilutamide. *Sensors and Actuators: A. Physical*, 2021,325,112711. (*Impact Factor: 4.291*)
7. Rajarshi Bhattacharyya, **Vivek Kumar Singh**, Somak Bhattacharyya, Pralay Maiti, and Santanu Das. Defect reconstruction in graphene for excellent broadband absorption properties with enhanced bandwidth. *Applied Surface Science*, 2020, 537,147840. (*Impact Factor: 7.392*)
8. Soumili Daripa, **Vivek Kumar Singh**, Om Prakash, Pralay Maiti, Biplab K Kuila and Santanu Das. Sulfonated graphene-modified electrode for enhanced capacitive performance and improved electro-oxidation for hydrogen peroxide. *Nano structure & Nano objects*, 2020,24,100531. (*Impact Factor: 5.454*)
9. Saibal Ray, Tapas K Bhattacharya, **Vivek Kumar Singh**, Debabrata Deb, Shounak Ghosh, and Santanu Das. Non-isothermal decomposition kinetics of nanoscale CaCO₃ as a function of particle size variation. *Ceramics International*, 2020, 47, 858-864. (*Impact Factor: 5.532*)
10. Anirban Bose, Sanhita Ray, **Vivek Kumar Singh**, Abesh Banerjee, Chumki Nayak, Achintya Singha, Amartya Bhattacharyya, Dipankar Chattopadhyay, Santanu Das, and Anjan Kr. Dasgupta. Differential Photo-Physical Responses of Two Photosynthetic Bacterial Species to a Series of Graphene. *Advances in Natural Sciences: Nanoscience and Nanotechnology*, 2020, 11, 015004. (*Impact Factor: 2.379*)

Patent

1. Santanu Das, **Vivek Kumar Singh**, Bratindranath Mukherjee. A method for development of synergistic nanohybrid structure on nanorods, (2021) Application No.202111028517 A (Indian Patent).
2. Santanu Das, **Vivek Kumar Singh**, Bratindranath Mukherjee. In situ SO₃H functionalized two-dimensional MoS₂ nanosheets. (2022) Submitted/Under filing. (Indian Patent).
3. Santanu Das, **Vivek Kumar Singh**, In-situ functionalization of the Sulphonic/ Sulfur trioxide (SO₃H/SO₃) group functionalized two-dimensional molybdenum disulfide (MoS₂) nanosheets by a one-pot hydrothermal. (2022) Submitted/Under filing. (Indian Patent).

Conferences/Presentation/Workshops

1. **Vivek Kumar Singh**, Santanu Das. “Nanoscale Hybrid Electrocatalysts as a Novel Archetype of Electrocatalytic Hydrogenation Evolution”; *International Conference on beyond fossil fuels: The Future of Alternative Energy Technologies [B:FAT 2020] IIT-BHU*, Varanasi, India. During **23-25 July 2022**. (Poster Presentation)
2. **Vivek Kumar Singh**, Santanu Das. “Nano-scale electrocatalysts for high-performance hydrogen evaluation reaction via water splitting”; *1st International Conference on Hydrogen Energy- Policies, infrastructure, Development and Challenges’ Organized by the central board of Irrigation & Power with the support of the Ministry of new and renewable energy (Government of India)*. During **24-25 November 2021**. (Oral Presentation)
3. **Vivek Kumar Singh**, Santanu Das. “Synergistic hybrid electrocatalysis for high-performance hydrogen evaluation reaction via water splitting”; *2nd International online School- Design Fabrication and application of Solar Energy Conversion*

*Devices. Organized by COOL LONGBOAT consortium for hydrogen energy during **1-3 December 2021**. (Oral Presentation)*

4. **Vivek Kumar Singh**, Santanu Das. “Two-dimensional MoS₂ Quantum dots: Synthesis, Properties, and application”, *India- UK second international conference on Energy, Environment and Healthcare Application (ANEH 2019)*, Bishop Heber College, India. During **February 04-06-2019**. (Poster presentation).
