

Centre of Material Science and Engineering

PUBLICATIONS:-Journal Papers

1. T Dixit, A Bilgaiyan, IA Palani, D Nakamura, T Okada, V Singh, Influence of Potassium Permanganate in the Anisotropic Growth and Enhanced UV Emission of ZnO Nanostructures using Hydrothermal Process for Optoelectronic Applications, *Journal of Sol-Gel Science and Technology*, 2015.
2. Rohit Kumar Rai, Kavita Gupta, Silke Behrens, Jun Li, Qiang Xu, and Sanjay Kumar Singh*, Highly Active Bimetallic Ni-Pd Alloy Nanoparticles Catalyzed Suzuki-Miyaura Reactions, *ChemCatChem*, 2015, 7, 1806-1812.
(In collaboration with Prof. Qiang Xu, AIST, Osaka, Japan and Dr. Silke Behrens, Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany)
3. Dr. Parasharam M. Shirage Ramanujan Fellow, Scientist, AIST Tsukuba, Japan (2008-2012), Fellow of Japanese Society for the Promotion of Science Japan (2006-2008), Visiting Scientist, Ministry of South Korea (MEXT)-2004-2006, Visiting Fellow, TIFR Mumbai (2012-2013) International Advisory Editorial Board of *Materials Research Express* (2013 onwards) (<http://iopscience.iop.org/2053-1591/page/International%20Advisory%20Panel>) Editorial Board Member of *International Bentham Journal*.
4. Indrani Choudhuri, Nandini Patra, Arup Mahata, Rajeev Ahuja, **Biswarup Pathak**, B-N@Graphene: Highly Sensitive and Selective Gas Sensor, *Journal of Physical Chemistry C* 10.1021/acs.jpcc.5b07359 (Just accepted), 2015. (Impact Factor: 4.772).
5. Manideepa Saha, Rajendar Nasani, Mriganka Das, Indrani Choudhuri, M. Yousufuddin, Hari Pada Nayek, Shaikh M. Mobin, **Biswarup Pathak**, Suman Mukhopadhyay, Targeted Water Soluble Copper-tetrazolate Complexes : Interactions with Biomolecules and Catecholase like Activities, *Dalton Trans* (Accepted), 2015. (Impact Factor: 4.197).
6. Limiting Nuclearity in Formation of Polynuclear Metal Complexes through [2+3] Cycloaddition: Synthesis and Magnetic Properties of Tri- and Pentanuclear Metal Complexes Generated through Bridging Tetrazolate Moiety, Manideepa Saha, Rajendar Nasani, Mriganka Das, Arup Mahata, **Biswarup Pathak**, Shaikh M Mobin, Luca M. Carrella, Eva Rentschler, Suman Mukhopadhyay, *Dalton Trans* 80, 8083-8093, 2014. (Impact Factor: 4.197).
7. Room-Temperature Chemoselective Reduction of Nitro Groups Using Non-noble Metal Nanocatalysts in Water, Rohit K. Rai, Arup Mahata, Sushobhan Mukhopadhyay, Sampa Gupta, Pei-Zhou Li, Kim T. Nguyen, Yanli Zhao, **Biswarup Pathak**, Sanjay K. Singh *Inorganic Chemistry* 53, 2904-2909, 2014. (Impact Factor: 4.762).
8. Band gap engineering in huge-gap semiconductor SrZrO₃ for visible-light photocatalysis, Guo, Zhonglu; Sa, Baisheng; **Biswarup Pathak**, Zhou, Jian; Ahuja, Rajeev; Sun, Zhimei *International Journal of Hydrogen Energy* 39, 2042, 2014. (Impact Factor: 3.313).

9. Improvement in the hydrogen desorption from MgH₂ upon transition metals doping: A hybrid density functional calculations, Tanveer Hussain, Tuhina A Maark, **Biswarup Pathak**, R. Ahuja **AIP Advances** 3, 102117, 2013. (Impact Factor: 1.524).
10. Anion doped NaTaO₃ for visible light photocatalysis, Baochang Wang, Pushkar D. Kanhere, Jawad Nisar, **Biswarup Pathak**, Rajeev Ahuja **Journal of Physical Chemistry C** 117, 22518 2013. (ISI Impact Factor: 4.772).
11. Cationic-Anionic Mediated Charge Compensation on La₂Ti₂O₇ for Visible Light Photocatalysis, Liu, Peng*; Nisar, Jawad; **Biswarup Pathak***; Ahuja, Rajeev, **Journal of Physical Chemistry C** 15, 17150, 2013. (Impact Factor: 4.772).
12. Theoretical Study of Electronic Transport through DNA Nucleotides in a Double Functionalized Graphene Nanogap, J. Prasongkit, A. Grigoriev, **Biswarup Pathak**, R. Ahuja, and R.H. Scheicher, **Journal of Physical Chemistry C** 117, 15421-15428, 2013. (Impact Factor: 4.772).
13. Anion-Anion Mediated Coupling in Layered Perovskite La₂Ti₂O₇ for Visible Light Photocatalysis, P. Liu*; Jawad Nisar; Baisheng Sa; **Biswarup Pathak***; Rajeev Ahuja, **Journal of Physical Chemistry C** 117, 13845-13852, 2013. (Impact Factor: 4.772).
14. Strain-induced Stabilization of Al Functionalization in Graphene Oxide Nanosheet for Enhanced NH₃ Storage, Yunguo Li, Abir De Sarkar, **Biswarup Pathak**, Rajeev Ahuja, **Applied Physics Letters**, 102, 243905, 2013. (Impact Factor: 3.302).
15. Metal-Decorated Graphene Oxide for Ammonia Adsorptions, Yunguo Li, **Biswarup Pathak**, Jawad Nisar, Zhao Qian and R. Ahuja, **Euro Physics Letter** 103, 28007-280012, 2013. (Impact Factor: 2.095).
16. Energetic and Structural Analysis of N₂H₄BH₃ Inorganic Solid and its Modified Material for Hydrogen Storage, Zhao Qian, **Biswarup Pathak**, Rajeev Ahuja, **International Journal of Hydrogen Energy** 38, 6718-6725, 2013. (Impact Factor: 3.313)
17. Layered Perovskite Sr₂Ta₂O₇ for Visible Light Photocatalysis: A First Principles Study Peng Liu, Jawad Nisar, Rajeev Ahuja, **Biswarup Pathak***, **Journal of Physical Chemistry C**, 117, 5043, 2013 (Impact Factor: 4.772).
18. Graphene Oxide as a Chemically Tunable 2-D Material for Visible-light Photocatalyst Applications, Xue Jiang, Jawad Nisar, **Biswarup Pathak**, J. J. Zhao, R. Ahuja **Journal of Catalysis** 299, 204, 2013. (Impact Factor: 6.921).
19. C₆₀ Mediated Hydrogen Desorption in Li-N-H Systems, Zhao Qian, Sa Li, **Biswarup Pathak**, C. Moysés Araújo, Rajeev Ahuja, P. Jena, **Nanotechnology** 23, 485406, 2012. (Impact Factor: 3.821).

20. Semiconducting Allotrope of Graphene, Jawad Nisar, Xue Jiang, **Biswarup Pathak**, J. J. Zhao, R. Ahuja **Nanotechnology**, 23, 385704, 2012. (Impact Factor: **3.821**).
21. Functionalization of Graphane with Alkali and Alkaline-earth Metals: A Insulator to Metallic Transition, T. Hussain, **Biswarup Pathak**, M. Ramzan, T. A. Mark, R. Ahuja, **Euro Physics Letter**, 99, 47004, 2012. (Impact Factor: **2.095**).
22. “Structural analysis of clay-microgel nanocomposites via SAXS and light scattering” Susanne Schipmann, Dagmar Carmele, Karla Dörmbach, Mark Servos, **Sudeshna Chattopadhyay**, Andrij Pich and Uwe Klemradt, **Soft Matter**, Submitted, 2015
23. “Method of enhanced lithiation of doped silicon carbide via high-temperature annealing in an inert atmosphere” Mark C. Hersam, Albert L. Lipson, **Sudeshna Bandyopadhyay**, Hunter J. Karmel, Michael J. Bedzyk, **U.S. Patent No.:** US 8,734, 674 B1; Date of Patent: May 27, 2014.
24. "What X-rays can tell us about the interfacial profile of water near hydrophobic surfaces" Ahmet Uysal, Miaoqi Chu, Benjamin Stripe, Amod Timalisina, **Sudeshna Chattopadhyay**, Christian M. Schlepütz, Tobin J. Marks and Pulak Dutta, **Phys. Rev. B** **88**, 035431 (2013).
25. “In Situ X-ray Study of the Solid Electrolyte Interphase (SEI) Formation on Graphene as a Model Li-ion Battery Anode” **Sudeshna Chattopadhyay**[§], Albert L. Lipson[§], Hunter J. Karmel, Jonathan D. Emery, Timothy T. Fister, Paul A. Fenter, Mark C. Hersam, and Michael J. Bedzyk, **Chemistry of Materials** **24** (15), 3038 (2012). [[§]Equal contribution and co-first authors] {Selected by Advanced Photon Source, Argonne National Lab, USA as **Outstanding Research Work**}
26. “Enhanced Lithiation of Doped 6H-SiC (0001) via High Temperature Vacuum Growth of Epitaxial Graphene” Albert L. Lipson[§], **Sudeshna Chattopadhyay**[§], Hunter J. Karmel, Timothy T. Fister, Jonathan D. Emery, Michael M. Thackeray, Paul A. Fenter, Michael J. Bedzyk, and Mark C. Hersam, **J. Phys. Chem. C** **116** (39), 20949 (2012). [[§]Equal contribution and co- first authors]
27. “Influence of potassium permanganate on the anisotropic growth and enhanced UV emission of ZnO nanostructures using hydrothermal process for optoelectronic applications”, T. Dixit, A. Bilgaiyan, I. A. Palani, D. Nakamura, T. Okada and V. Singh, **Journal of Sol-Gel Science and Technology**, Vol. 75, Issue 3, (2015) pp 693.
28. “Effect of Addition of KI on the Hydrothermal Growth of ZnO Nanostructures Towards Hybrid Optoelectronic Device Applications”, A. Bilgaiyan, T. Dixit, G. Kapil, S. S. Pandey, S. Hayase, I. A. Palani and V. Singh, **Journal of Nanoscience and Nanotechnology**, Vol. 16, (2016) pp-1.