Md. Selim Arif Sher Shah

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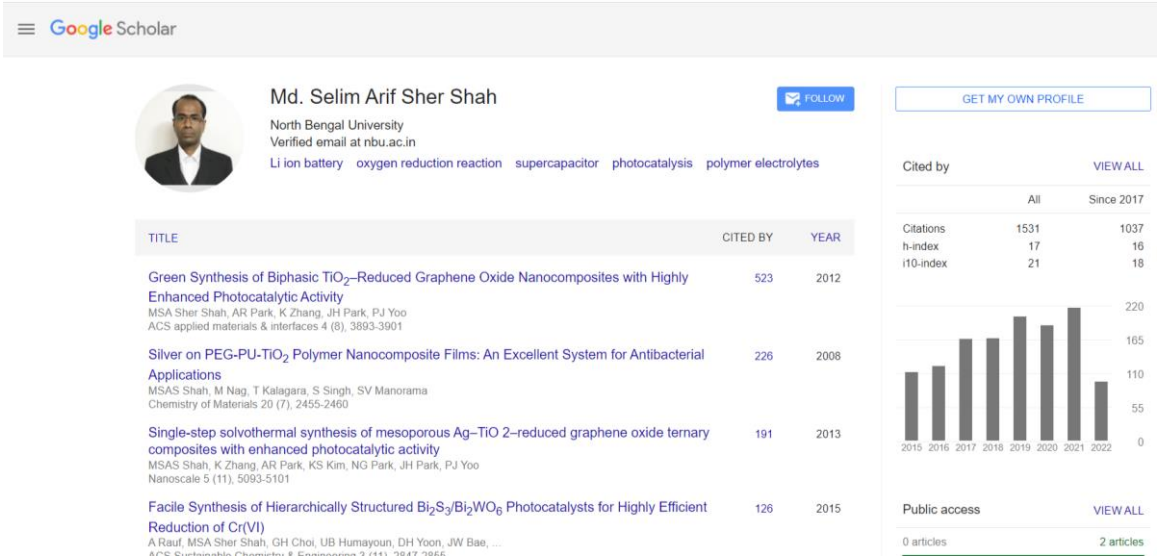
Dr. Md. Selim Arif Sher Shah

Know me, know innovation; no me, no innovation.



Key words: Graphene, nanostructures, photocatalysis, electrocatalysis and Li ion battery.

CURRENT POSITION

Associate Professor (April 2021 ~ till date), **Department of Chemistry, North Bengal University,** Siliguri, West Bengal, India.

EDUCATION

PhD (Submitted October, 2010 and defended October, 2012), worked in **Indian Institute of Chemical Technology,** Hyderabad, India and registered in **Osmania University,** Hyderabad, India.

Thesis: Studies on polymer nanocomposites of polyurethane semi-IPN and titania: Synthesis, characterization and applications.

Supervisor: Dr. Sunkara V. Manorama.

MSc. Chemistry (2004), Jadavpur University, Kolkata, India.

Specialization in Physical Chemistry.

Dissertation: Electrochemical oxidation of methanol, ethanol and dextrose on carbon and carbon supported manganese dioxide electrodes.

Advisor: Prof. Koushik Das.

BSc. (Honours) Chemistry (2002), Jadavpur University, Kolkata, India.

RESEARCH EXPERIENCE

Yonsei University, Seoul, Republic of Korea

- Research Professor: June, 2018 to March 2021

Sungkyunkwan University, Suwon-si, Republic of Korea

- Research Professor: February, 2018 to May, 2018.
- Postdoctoral Fellow: March, 2011 to January, 2018.

TEACHING EXPERIENCE

- Electrochemistry
- Irreversible thermodynamics
- BASIC computer language

RESEARCH INTERESTS

- Photocatalysis
- Lithium-ion battery anode
- Electrocatalysis
- Nanostructured materials

GRANT AND FELLOWSHIPS

- NRF, South Korea, 150,000 USD for three years.
- Excellent poster award by Korean Society of Industrial and Engineering Chemistry, spring 2017, Gwangju, South Korea.
- BK21 Plus research grants 2015 - 2017.
- Sungkyunkwan University research grants 2011 - 2015.

AWARDS AND HONOURS

- Senior Research Fellowship, CSIR, New Delhi, India, 2007.
- Junior Research Fellowship (JRF), CSIR, New Delhi, India, 2005.
- Qualified Lectureship in CSIR-UGC NET Exam, New Delhi, India, 2004.

PROJECTS UNDERTAKEN

- Development of inorganic nanoparticle filler to decrease the CTE of polymeric substrate, from Cheil Industries.
- Development of high performance nanofiller materials for flexible substrates with minimal CTE and good optical transparency, by BASF.

- SiO_x (0<x<2)-based composites for high performance lithium-ion battery from Samsung SDI.
- Heteroatom-doped hierarchically porous carbon nanostructures for electrochemical energy storage applications, by NRF research grant, 2017R1D1A1B03036507.
- Methane oxidation with nanostructured metal oxides.

PROFESSIONAL ASSOCIATIONS

- The Polymer Society of Korea
- The Korean Society of Industrial and Engineering Chemistry
- The European Materials Research Society
- Materials Research Society

SCHOLARLY PUBLICATIONS

- Silver on PEG-PU-TiO_2 polymer nanocomposite films: An excellent system for antibacterial applications by **Md. Selim Arif Sher Shah**, Manaswita Nag, Thejaswi Kalagara, Shashi Singh and Sunkara V. Manorama, Chemistry of Materials, 2008, 20, 2455. I. F. 9.811. Cited 226 times.

- Pd @ PEG-PU polymer network: a convenient catalyst for hydrogenation and suzuki coupling reactions by **Md. Selim Arif Sher Shah**, Debanjan Guin and Sunkara V. Manorama, Materials Chemistry and Physics 2010, 124, 664. I. F. 4.094. Cited 9 times.

- Polymer Nanocomposites as solid electrolytes: evaluating ion-polymer, polymer-nanoparticle interactions in PEG-PU/PAN semi-IPNs and titania systems by **Md. Selim Arif Sher Shah**, Pratyay Basak and Sunkara V. Manorama, The Journal of Physical Chemistry C, 2010, 114, 14281. I. F. 4.126. Cited 21 times.

- Semi-interpenetrating polymer networks as solid polymer electrolytes: Effects of ion-dissociation, crosslink density and oligomeric entanglements on the conductivity behavior in poly(ethylene oxide)-polyurethane/poly(acrylonitrile) matrix by Kota Ramanjaneyulu, Nimai Bar, **Md. Selim Arif, Sher Shah**, Sunkara V Manorama and Pratyay Basak, Journal of Power Sources, 2012, 217, 29 (first co-author). I. F. 9.127. Cited 17 times.

- Green synthesis of biphasic TiO_2-reduced graphene oxide nanocomposites with highly enhanced photocatalytic activity by **Md. Selim Arif Sher Shah**, A Reum Park, Kan Zhang, Jong Hyeok Park and Pil J. Yoo, ACS Applied Material & Interfaces, 2012, 4, 3893. I. F. 9.229. Cited 523 times.

- Single step solvothermal synthesis of mesoporous Ag/TiO_2/graphene ternary composites with enhanced photocatalytic activity by **Md. Selim Arif Sher Shah**, Kan Zhang, A Reum Park, Kwang Su Kim, Nam-Gyu Park, Jong Hyeok Park and Pil J. Yoo, Nanoscale, 2013, 5, 5093. I. F. 7.79. Cited 191 times.

- Highly efficient and recyclable nanocomplexed photocatalysts of AgBr/N-doped and amine-functionalized reduced graphene oxide by **Md. Selim Arif Sher Shah**, Woo-Jae Kim, Juhyun Park, Do Kyung Rhee, In-Hyuk Jang, Nam-Gyu Park, Jun Young Lee and Pil J. Yoo, ACS Applied Material & Interfaces, 2014, 6, 20819. I. F. 9.229. Cited 48 times.

- Incorporation of PEDOT: PSS into SnO_2/reduced graphene oxide nanocomposite anodes for lithiumion batteries to achieve ultra-high capacity and cyclic stability by **Md. Selim Arif Sher Shah**, Shoaib Muhammad, Jong Hyeok Park, Won-Sub Yoon and Pil J. Yoo, RSC Advances, 2015, 5, 13964. I. F. 3.36. Cited 29 times.

- Self-supported Ag/AgCl nanoparticles incorporated polymeric multilayer films for reusable electrophotocatalyst by **Md. Selim Arif Sher Shah**, Young Hun Kim, A. Reum Park, Ali Rauf, and Pil J. Yoo, Mater. Express, 2015, 5, 401-409. I. F. 1.48. Cited 10 times.

- Facile synthesis of hierarchically structured Bi_2S_3/Bi_2WO_6 photocatalysts for highly efficient reduction of Cr(VI) by Ali Rauf, **Md. Selim Arif Sher Shah**, Gwan Hyun Choi, Usama Bin Humayoun, Dae Ho Yoon, Jong Wook Bae, Juhyun Park, Woo-Jae Kim, Pil J. Yoo, (first co-author) ACS Sustainable Chemistry & Engineering, 2015, 3, 2847-2855. I. F. 8.198. Cited 126 times.

- A molecular lock with hydrogen sulfate as “key” and fluoride as “hand”: computing based insights on the functioning mechanism by Suvendu Paul, Monaj Karar,

Swastika Mitra, **Selim A. Sher Shah**, Tapas Majumdar, and Arabinda Mallick, ChemistrySelect, 2016, 1, 5547. I. F. 2.109. Cited 16 times.

- Ultra-fine SnO_2 nanoparticles doubly embedded in amorphous carbon and reduced graphene oxide (rGO) for superior lithium storage by **Md. Selim Arif Sher Shah**, Jooyoung Lee, A Reum Park, Youngjin Choi, Woo-Jae Kim, Juhyun Park, Chan-Hwa Chung, Jaeyun Kim, Byungkwon Lim and Pil J. Yoo, Electrochimica Acta, 2017, 224, 201. I. F. 6.901. Cited 34 times.

- Highly interdigitated and porous architected ternary composite of SnS_2, g-C_3N_4, and reduced graphene oxide (rGO) as high-performance lithium-ion battery anodes by **Md. Selim Arif Sher Shah**, A. R. Park, A. Rauf, S. H. Hong, Y. Choi, J. Park, J. Kim, W. -J. Kim and P. J. Yoo, RSC Advances, 2017, 7, 3125. I. F. 3.36. Cited 38 times.

- Hydrous RuO_2 nanoparticles as highly active electrocatalysts for hydrogen evolution reaction by Jooyoung Lee, **Md. Selim Arif Sher Shah**, Pil Jin Yoo and Byungkwon Lim, Chemical Physics Letters, 2017, 673, 89. I. F. 2.328. Cited 35 times.

- Non-stoichiometric SnS microspheres with highly enhanced photoreduction efficiency for Cr(VI) ions by Ali Rauf, **Md. Selim Arif Sher Shah**, Jun Young Lee, Chan-Hwa Chung, Jong Wook Bae and Pil J. Yoo, RSC Advances, 2017, 7, 30533. I. F. 3.36. Cited 24 times.

- Si/Co-$CoSi_2$/reduced graphene oxide ternary nanocomposite anodes for Li-ion batteries with enhanced capacity and cycling stability by A Reum Park, Myeong Gyun Nam, A-Young Kim, Kwang-Su Kim, **Md. Selim Arif Sher Shah**, Joong-Kee Lee and Pil J. Yoo, Journal of Alloys and Compounds, 2017, 724, 1134. I. F. 5.316. Cited 15 times.

- Mediator and co-catalysts-free direct Z-scheme composites of Bi_2WO_6-Cu_3P for solar-water splitting by Ali Rauf, Ming Ma, Sungsoon Kim, **Md. Selim Arif Sher Shah**, Chan-Hwa Chung, Jong Hyeok Park and Pil J Yoo, Nanoscale, 2018, 10, 3026. I. F. 7.79. Cited 66 times.

- Enhanced capacitive deionization performance by rGO-SnO_2 nanocomposite modified carbon felt electrode by Syed Kamran Sami, Jung Yong Seo, Suh-Eun Hyeon, **Md. Selim Arif Sher Shah**, Pil Jin Yoo and Chan-Hwa Chung, RSC Advances, 2018, 8, 4182. I. F. 3.36. Cited 31 times.

- Electrostatically regulated ternary-doped carbon foams with exposed active sites as metal-free oxygen reduction electrocatalysts by **Md. Selim Arif Sher Shah**, Jooyoung Lee, Ali Rauf, Byungkwon Lim and Pil J. Yoo, Nanoscale, 2018, 10, 19498. I. F. 7.79. Cited 13 times.

- Catalytic effect of reduced graphene oxide on facilitating reversible conversion reaction in SnO_2 for next-generation Li rechargeable batteries by Hyunchul Kim, Hyunwoo Kim, Shoaib Muhammad, Ji Hyun Um, **Md. Selim Arif Sher Shah**, Pil J. Yoo, Won-Sub Yoon, Journal of Power Sources, 2020, 446, 227321. I. F. 9.127. Cited 18 times.

- Techno-economic assessment of process integration models for boosting hydrogen production potential from coal and natural gas feedstocks by Ali Rauf, Usama Ahmed, Usman Ahmed, Nabeel Ahmed, **Md. Selim Arif Sher Shah**, Fuel, 2020, 266, 117111. I. F. 6.609. Cited 20 times.

- Catalytic oxidation of methane to oxygenated products: recent advancements and prospects for electrocatalytic and photocatalytic conversion at low temperatures by **Md. Selim Arif Sher Shah**, Cheoulwoo Oh, Hyesung Park, Yun Jeong Hwang, Ming Ma and Jong Hyeok Park, Advanced Science 2020, 2001946. I. F. 16.8. Cited 18 times. This article also appears in: Hot Topic: Photocatalysis.

- Unprecedented electrocatalytic oxygen evolution performances by cobalt-incorporated molybdenum carbide microflowers with controlled charge re-distribution by **Md. Selim Arif Sher Shah**, Vinod K. Paidi, Hyeonjung Jung, Sungsoon Kim, Geunsik Lee, Jeong Woo Han, Kug-Seung Lee, and Jong Hyeok Park, Journal of Materials Chemistry A, 2021, 9, 1770. I. F. 12.73. Cited 3 times.

INVITED TALK

- Graphene-based hybrid nanocomposite materials for electrochemical energy conversion and storage applications at International Year of Periodic Table, IYPT 2019, 22-23 Nov. Department of Chemistry, University of North Bengal, Darjeeling, India.

BOOK CHAPTER

- Biopolymer composites in light emitting diodes by S. Haque, M. S. A. Sher Shah, M. Rahman and M. Mohiuddin. Book chapter contribution in 'Biopolymer Composites in Electronics' Editors: K. K. Sadasivuni, D. Ponnamma, J. Kim, J.-J. Cabibihan, M. A. AlMaadeed published by Elsevier, ISBN: 978-0-12-809261-3, September 2016.