Dr. SHAMSHAD ALI

Personal details

Dr. SHAMSHAD ALI

engr.shamshad@hotmail.com

+92 3334160145

August 1, 1987

Male

scholar.google.com/citations?user=Grn2XcQAAAAJ&hl=en

linkedin.com/in/shamshad-ali-8b177019b

Skills

Microsoft Office

Adobe Photoshop CS5

Origin

3D works

3D Max

XPS peak

GSAS-II XRD refinement

About me

Earned a Ph.D. in Energy Storage Materials and Devices from the University of Electronic Science and Technology of China (UESTC), specializing in advanced battery technologies. Published extensively in top-tier SCI journals (including ACS Applied Materials & Interfaces, Small, Energy Storage Materials, and Advanced Materials Interfaces) on lithium/sodium-ion battery innovations, with two publications featuring Nobel Laureate Prof. John B. Goodenough (Chemistry, 2019) as corresponding author. Accumulated 4+ years as Assistant Professor at Balochistan University of Engineering and Technology Khuzdar, leading curriculum development, accreditation (OBE), and industrial collaborations. Currently advancing research on Prussian blue/layered oxide cathodes for sodium-ion batteries as a Postdoctoral Fellow at UESTC's Yangtze Delta Region Institute.

Education

PhD (Electronic Science and Technology) **Sep 2015 - Jul 2019**

University of Electronic Science and Technology of China, Chengdu, China

- Address Xiyuan Ave, West Hi-Tech Zone, Chengdu, 611731, Chengdu, China
- Website https://en.uestc.edu.cn/

Master of Engineering (Communications Systems and Networks) **Jan 2010 - Sep 2013**

Mehran University of Engineering and Technology Jamshoro, Jamshoro, Sindh, Pakistan

- Address Jamshoro, Sindh, Pakistan., 76062, Jamshoro, Pakistan
- Website https://muet.edu.pk/

Bachelor of Engineering (Electronic Engineering) **Jan 2006 - Dec 2009**

Quaid e Awam University of Engineering and Science Technology, Nawabshah, Pakistan

- Address Sakrand Road, Nawabshah, Sindh, Pakistan, Nawabshah, Pakistan
- Website https://quest.edu.pk/

Employment

Post Doctoral Research Fellow **Apr 2023 - Apr 2025**

Yangtze Delta Region Institute of University of Electronic Science and Technology of China, Huzhou, China

- Prussian Blue cathodes for Sodium ion batteries
- Layered Transition Metal Oxides cathodes for Sodium ion batteries

Assistant Professor **Sep 2020 - Apr 2023**

Balochistan University of Engineering and Technology Khuzdar, Khuzdar, Pakistan

- **Head of Department** (Department of Electronic Engineering)
- Led OBE implementation, ensuring compliance with PEC standards.
- Prepared documentation for zero and interim accreditation visits.
- Aligned curriculum with program outcomes (POs) and industry needs.
- **Member of Board of Studies**
- Reviewed and updated OBE-aligned syllabi, CLOs, and assessment methods.
- **Member Departmental OBE Committee**
- Conducted course file audits and CLO-PO mapping for accreditation.
- Analyzed assessment data for continuous improvement.
- **Member of Industrial Advisory Board**
- Advised on industry trends to enhance curriculum relevance.
- **Member of University Admission Cell**
- Evaluated eligibility criteria and admission policies.
- Taught Undergraduate and master Subjects (e.g., Communication Systems, Power Electronics, Industrial Electronics, Signal and Systems, Energy Storage Materials etc).

Lecturer **Aug 2013 - Aug 2015**

Shaheed Benazir Bhutto University Nawabshah, Nawabshah, Pakistan

- Taught Undergraduates Subjects
- Head of Department
- Co-ordinator of SBBU Naushahro Feroze Campus
- Taught undergraduate courses

Publications

- Ali, S.; Jiang, J.; Guo, C.; Wang, D.; Wang, X.; Xia, W.; Fu, M.; Yuan, Z.; Yan, W.; Li, J.; Zhang, Y.; Zhou, A. The Role of Crystal Water in the Electrochemical Properties of Sodium Manganese Hexacyanoferrate Cathodes in Sodium-Ion Batteries. Electrochim. Acta 2025, 521, 145920. https://doi.org/https://doi.org/10.1016/j.electacta.2025.145920.

- Ali., S.; Ruan., C.; Jiang, J.; Wang, D.; Wang, X.; Yuan, Z.; Li, J.; Zhang, Y. ; Zhou, A. A Parameter-Driven Approach to Modulating Chemical Composition in Prussian Blue Analogues Cathodes for Sodium-Ion Batteries. Chem. – A Eur. J. 2025, 31 (27), e202404726. https://doi.org/https://doi.org/10.1002/chem.202404726.

- Ali, S.; Waqas, M.; Thaheem, I.; Hussain, A.; Soomro, A. M.; Bhutto, Z.; Muhammad, W.; Shah, S. A. R.; Shah, J. Nitrogen-Enriched Mesoporous Carbon Spheres as Efficient Anode Material for Long-Cycle Li/Na-Ion Batteries. Phys. status solidi 2022, 219 (8), 2100714. https://doi.org/https://doi.org/10.1002/pssa.202100714.

- Han, Y.; Chen, D.; Ali, S.; Feng, C.; Meng, F.; Waqas, M.; He, W. Hierarchical Self-Supported Carbon Nanostructure Enables Superior Stability of Highly Nitrogen-Doped Anodes. ChemElectroChem 2020, 7 (18) , 3883–3888. https://doi.org/https://doi.org/10.1002/celc.202001005.

- Ali, S.; Waqas, M.; Chen, N.; Chen, D.; Han, Y.; Boateng, B.; Xiong, J.; Han, J.; He, W. Three-Dimensional Twisted Fiber Composite as High-Loading Cathode Support for Lithium Sulfur Batteries. Compos. Part B Eng.

2019, 174, 107025. https://doi.org/https://doi.org/10.1016/j.compositesb.2019.107025.

- Ali, S.; Tan, C.; Waqas, M.; Lv, W.; Wei, Z.; Wu, S.; Boateng, B.; Liu, J.; Ahmed, J.; Xiong, J.; Goodenough, J. B.; He, W. Highly Efficient PVDF-HFP/Colloidal Alumina Composite Separator for High-Temperature Lithium-Ion Batteries. Adv. Mater. Interfaces 2018, 5 (5), 1701147. https://doi.org/https://doi.org/10.1002/admi.201701147.
- Ali, S.; Waqas, M.; Jing, X.; Chen, N.; Chen, D.; Xiong, J.; He, W. Carbon–Tungsten Disulfide Composite Bilayer Separator for High-Performance Lithium–Sulfur Batteries. ACS Appl. Mater. Interfaces 2018, 10 (46), 39417–39421. https://doi.org/10.1021/acsami.8b12682.
- Ali, S.; Shaikh, F. K.; Chowdhry, B. S.; Felemban, E. Smart Structural Monitoring — A Case of Bridge Damage Detection. In 2014 4th International Conference on Wireless Communications, Vehicular Technology, Information Theory and Aerospace & Electronic Systems (VITAE); 2014; pp 1–5. https://doi.org/10.1109/VITAE.2014.6934422.
- Waqas, M.; Soomro, A. M.; Ali, S.; Ashraf, H.; Chan, A. S.; Kumar, S.; Choi, K. H. A Highly Efficient Composite Separator Embedded with Colloidal Lanthanum Oxide Nanocrystals for High-Temperature Lithium-Ion Batteries. Int. J. Energy Res. 2021, 45 (7), 11179–11192. https://doi.org/10.1002/er.6599.
- Zhou, A.; Guo, C.; Jiang, J.; Wang, D.; Wang, X.; Ali, S.; Li, J.; Xia, W.; Fu, M.; Sun, W. The Pillar Effect of Large-Size Alkaline Ions on the Electrochemical Stability of Sodium Manganese Hexacyanoferrate for Sodium-Ion Batteries. Small 2023, 19 (50), 2304887. https://doi.org/10.1002/smll.202304887.
- Waqas, M.; Manzoor Soomro, A.; Ali, S.; Kumar, S.; Chan, S.; Hussain, K.; Hussain Memon, F.; Ahmed Shaikh, S. Multifunctional Cathodic Interlayer with Polysulfide Immobilization Mechanism for High-Performance Li-S Batteries. ChemistrySelect 2020, 5 (38), 12009–12019. https://doi.org/10.1002/slct.202003381.
- Guo, C.; Xing, J.; Shamshad, A.; Jiang, J.; Wang, D.; Wang, X.; Bai, Y.; Chen, H.; Sun, W.; An, N.; Zhou, A. In Situ Growth of Sodium Manganese Hexacyanoferrate on Carbon Nanotubes for High-Performance Sodium-Ion Batteries. Molecules 2024, 29 (2). https://doi.org/10.3390/molecules29020313.
- Waqas, M.; Han, Y.; Chen, D.; Ali, S.; Zhen, C.; Feng, C.; Yuan, B.; Han, J. ; He, W. Molecular ‘Capturing’ and ‘Seizing’ MoS2/TiN Interlayers Suppress Polysulfide Shuttling and Self-Discharge of Li–S Batteries. Energy Storage Mater. 2020, 27, 333–341. https://doi.org/https://doi.org/10.1016/j.ensm.2020.02.015.
- Waqas, M.; Ali, S.; Lv, W.; Chen, D.; Boateng, B.; He, W. High-Performance PE-BN/PVDF-HFP Bilayer Separator for Lithium-Ion Batteries. Adv. Mater. Interfaces 2019, 6 (1), 1801330. https://doi.org/https://doi.org/10.1002/admi.201801330.
- Thaheem, I.; Ali, S.; Waqas, M.; Hussain, A.; Soomro, A. M.; Bhutto, Z.; Shah, S. A. R.; Muhammad, W.; Shah, J. Electrochemical Performance of NiCo2O4 Spinel Cathodes for Intermediate Temperature Solid Oxide Fuel Cells. Phys. status solidi 2022, 219 (1), 2100542. https://doi.org/https://doi.

org/10.1002/pssa.202100542.

- Waqas, M.; Ali, S.; Chen, D.; Boateng, B.; Han, Y.; Zhang, M.; Han, J.; Goodenough, J. B.; He, W. A Robust Bi-Layer Separator with Lewis Acid-Base Interaction for High-Rate Capacity Lithium-Ion Batteries. Compos. Part B Eng. 2019, 177, 107448. https://doi.org/https://doi.org/10.1016/j.compositesb.2019.107448.

- Waqas, M.; Ali, S.; Feng, C.; Chen, D.; Han, J.; He, W. Recent Development in Separators for High-Temperature Lithium-Ion Batteries. Small 2019, 15 (33), 1901689. https://doi.org/https://doi.org/10.1002/smll.201901689.

- Waqas, M.; Tan, C.; Lv, W.; Ali, S.; Boateng, B.; Chen, W.; Wei, Z.; Feng, C.; Ahmed, J.; John B. Goodenough, W. H. A Highly-Efficient Composite Separator with Strong Ligand Interaction for High- Temperature Lithium Ion Batteries. ChemElectroChem 2018, 5 (19), 2772. https://doi.org/10.1002/chem.201704401.

- Chowdhry, B. S.; Shaikh, F. K.; Ali, S.; Felemban, E. Experimental Evaluation of Vibration Response Based Bridge Damage Detection Using Wireless Sensor Networks. Wirel. Pers. Commun. 2015, 85 (2), 499–510. https://doi.org/10.1007/s11277-015-2751-1.

- Muhammad, W.; Bhutto, Z.; Ansari, A.; Memon, M. L.; Kumar, R.; Hussain, A.; Shah, S. A.; Thaheem, I.; Ali, S. Multi-Path Deep CNN with Residual Inception Network for Single Image Super-Resolution. Electronics . 2021. https://doi.org/10.3390/electronics10161979.

- Ahmed, J.; Waqas, M.; Ali, S.; Memon, R. A.; Klette, R. Coupled Dictionary Learning in Wavelet Domain for Single-Image Super-Resolution. Signal, Image Video Process. 2018, 12 (3), 453–461. https://doi.org/10.1007/s11760-017-1178-4.

- Boateng, B.; Zhu, G.; Lv, W.; Chen, D.; Feng, C.; Waqas, M.; Ali, S.; Wen, K.; He, W. An Efficient, Scalable Route to Robust PVDF-Co-HFP/SiO2 Separator for Long-Cycle Lithium Ion Batteries. Phys. Status Solidi RRL 2018, 12 (10), 1800319. https://doi.org/10.1002/pssr.201800319.

- Ahmed, J.; Memon, R. A.; Waqas, M.; Mangrio, M. I.; Ali, S. Selective Sparse Coding Based Coupled Dictionary Learning Algorithm for Single Image Super-Resolution. In 2018 International Conference on Computing, Mathematics and Engineering Technologies (iCoMET); 2018; pp 1–5. https://doi.org/10.1109/ICOMET.2018.8346357.

- Jiang, J.; Guo, C.; Ali, S.; Wang, D.; Wang, X.; Wei, C.; Li, J.; Xia, W.; Fu, M.; Sun, W.; An, N.; Zhao, Z.; Zhou, A. Understanding the Stabilizing Effect of K+ on the Sodium Manganese Hexacyanoferrate for Sodium-Ion Batteries. Nano Energy 2024, 129, 110007. https://doi.org/https://doi.org/10.1016/j.nanoen.2024.110007.

- Waqas, M.; Niu, Y.; Tang, M.; Pang, Y.; Ali, S.; Dong, Y.; Lv, W.; He, W. A Decade of Development in Cathode-Facing Surface Modified Separators for High-Performance Li-S Batteries. Energy Storage Mater. 2024, 72, 103682. https://doi.org/https://doi.org/10.1016/j.ensm.2024.103682.

Worked in Projects

- Fundamental Research Funds for the Chinese Central Universities Grant ZYGX2015Z003
- Science & Technology Support Funds of Sichuan Province Grant 2016GZ0151
- National Natural Science Foundation of China Grant No. 21403031 and 51501030
- Sichuan Science and Technology Program Grant No. 2014RZ0041
- National Research Foundation of Korea (NRF) NRF-(2018R1A2B3001830)

Professional Engineering Registration

- Registration No: ELECTRO/13471

Thesis Supervised

- An Automated Irrigation System Using Arduino With an SMS Alert System
- Speed control of DC motor using advanced converters
- Mechano-optical strain sensor for health monitoring application

Patent Submitted

- Ali Shamshad, Zhou Aijun, Wang Donghuang, Jiang Jicheng, Wang Xin ("A Dehydrated Prussian Blue Analogue with Hydrophobic Layer and Its Preparation Method and Application"), September 10, 2024, China, Patent No. 202410601573.3
- Ali Shamshad, Zhou Aijun, Wang Donghuang, Jiang Jicheng, Wang Xin ("A Prussian Blue-Based Cathode Material and Its Preparation Method and Application"), January 24, 2025, China, Patent No. 202411561051.1

Skills Related to Battery Technology

- Core Technical Expertise: Specialization in lithium-ion, lithium-sulfur, and sodium-ion batteries, with a focus on separator technologies and cathode material optimization. Cathode Slurry Preparation: Skilled in formulating and processing cathode slurries for battery assembly. Battery Assembly & Testing: Proficient in assembling batteries and conducting comprehensive electrochemical testing.
- Advanced Tools & Techniques Material Characterization: XRD, SEM/TEM, XPS, BET, Raman, FTIR. Electrochemical Testing: EIS, CV, GITT, in-situ analysis, long-term cycling (1,000+ cycles). Thermal & Mechanical Analysis: DSC, TGA, tensile testing, thermal shrinkage mapping

- Technical Writing: Extensive experience in writing research papers, technical reports, and patent applications.
- Project Leadership: Experienced in leading cross-disciplinary research teams, managing projects from conception through to publication and patenting.

References

Dr. Raheel Ahmed Memon (Director Post Graduate Studies)
Sukkur IBA University, Sukkur
+923003020242, raheelmemon@iba-suk.edu.pk

Dr. Ayaz Hussain Jarwar (Director Post Graduate Studies)
Balochistan UET Khuzdar, Khuzdar
+923332669897, ayaz@buetk.edu.pk