Syed Tayyab Raza Naqvi

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RESEARCH INTERESTS

Innovate for Health and Environment

- Diagnosis of health and environmental challenges
- Electrochemical and Colorimetric sensors
- Metal, conductive polymers and carbon based nanomaterials
- Designing SPE and microelectrodes
- Real time sensing devices

RESEARCH EXPERIENCE

PHD Research

- Synthesis of the transition metal based bimetallic nanomaterial such FeNi, CuCo and AgNi for sensing and water splitting.
- Investigated the influence of graphene and nitrogen-modified carbon dots on the sensing performance of bimetallic electrodes
- In house designing of micro electrode based on carbon fiber, gold and silver as well as their application as enzyme free sensors.
- Interpretation of results obtained from SEM, FTIR,UV, BET, XRD, TGA, DSC and AFM.
- Experience in electrochemical analysis of analyte and material by CV, Ampero, LSV, DPV and EIS
- Experience in development of paper-based and screen-printed electrodes for electrochemical sensing and analysis. This includes understanding the materials, printing techniques, and applications of these low-cost and portable electrodes.
- Expertise in research software such as Origin (data processing and analysis), ChemDraw and Chemsketch (structures and schematic daigrams), Endnote (Reference citations), ANOVA (Statistical Data Analysis) and UV-Probe
- Evaluation of the oxidative stress from smoker's and non-smoker's serum samples and other redox active species in living system.
- Hand on experience in development of electrode materials, instrumentation, and the interpretation of electrochemical data for various applications in research and analysis.

MPhil Research

- Synthesis of polymers (GMA/DVB and AGE/DVB)
- Functionalization of polymers with boronic acid and iminodiacetic acid
- Application of functionalized polymers for enrichment of glyco and mettaloproteins(e.g Transferrin)
- Investigation of Transferrin enrichment strategy by MALDI-TOF-MS

BS Research

- Synthesis of Iron and cobalt based magnetic nanoparticles for water remedy
- Modification of nanoparticles by silica coating
- Evaluation of silica coating effect on photo catalysis of dyes.

WORK EXPERIENCE

Research Fellow

Department of Industrial Chemistry "Toso Montanari" University of BoloGna [01/12/2024 – Current]

City: Bologna | **Country:** Italy

Research Consultant

BuildTech Chemicals & Services PVT.LTD [01/03/2021 – 01/06/2024]

City: Dera Ghazi Khan | **Country:** Pakistan

- Offer consultancy on the selection of appropriate methods based on the research objectives and questions.
- To maintain relevance and effectiveness, and informed about the latest developments and trends in research methodologies, technologies, and best practices.

Quality Control Manager

Hybralix (Pvt.) Ltd [01/01/2020 – 01/01/2021]

City: Multan

- Develop, implement, and maintain quality control processes and procedures to monitor and assess product quality throughout the production or service delivery process.
- Provide training to employees involved in quality control activities. Ensure that team members understand quality standards and inspection procedures.

Visiting Lecturer of Analytical Chemistry

Department of Physics Bahauddin Zakariya University [08/10/2018 – 15/06/2019]

City: Multan | **Country:** Pakistan

- Deliver lectures on chemometrics, quality control and quality assurance and classical analytical methods.
- Responsible for instructing and training the bachelor students to perform the laboratory experiments.

Visiting Faculty (Chemistry)

NFC Institute of Engineering And Technology [15/10/2015 – 15/09/2016]

City: Multan | **Country:** Pakistan

- Deliver the lectures on environmental chemistry and analytical techniques (Titrations, Conductometry, HPLC, GC) employed for analysis of environmental samples.

SUPPLEMENTARY PROFESSIONAL EXPERIENCE

Research Team Manager and Project Leader

- Assist junior researchers in the design, composition, and presentation of projects for meetings.
- Setting up experiments, including arranging materials, chemicals, and instruments, and ensuring they are ready for student use.
- Supervising data collection and recording, helping students with data analysis, and ensuring accurate record-keeping.
- Maintain effective communication with both students and supervisor, addressing any concerns or questions related to the experiments.
- Provide support to junior researchers in the writing of their theses and scientific research papers.

Lab Demonstrator

- Guide undergraduate students through laboratory experiments, ensuring their safety, and providing instructions on procedures and equipment usage.
- Ensure safety protocols, including the use of protective gear, proper handling of chemicals.
- Assist students in understanding experiments, troubleshooting issues, and clarifying concepts related to the lab work.
- Share knowledge and expertise in the subject matter, helping students learn and apply scientific concepts.

ACHIEVEMENTS

[05/10/2023]

Certificate of Appreciation for Significant Research Contributions, Presented by Director Institute of Chemical Sciences (ICS), Bahauddin Zakariya University, Multan Pakistan

[13/08/2023 – 16/08/2023]

Journal of Electrochemistry Poster Award, August 2023; International Symposium of Electroanalytical Chemistry China

[2022]

Winner of National level Competition in Sector of Health Organized by National Idea Bank (NIB)

[2021]

Received Appreciation Certificate on Winning City level Competition in Sector of Health Organized by National Idea Bank (NIB)

[29/06/2021]

Certificate of Accomplishment for Making Place in Top 10 finalist for Nano-Diet's in NutriBiz (Nutrition Innovation Challenge)

[18/12/2018 – 19/12/2018]

1st Position for Poster Presentation in 1st International Physics Conference On " Innovation In Material Science & Nanotechnology". Organized by Department of Physics, Lahore Garrison University Lahore, Pakistan

[04/05/2017 – 06/05/2017]

2nd Position for Poster Presentation in 1st National Science Conference " Sciences for Betterment of Humanity" Organized by ORIC The Government Sadiq College Women University, Bahawalpur, Pakistan

EDUCATION AND TRAINING

Doctor of Philosophy in Chemistry

Bahauddin Zakariya University Multan [2016 – 2023]

City: Multan | **Country:** Pakistan | **Type of credits:** CGPA | **Number of credits:** 3.67/4.00 | **Thesis:** Fabrication of Metal-Based Nanostructures as Biosensors.

- Types of sensing and Methodologies.
- Knowledge of electrochemistry and electroanalytical techniques (CV, Amperometry, LSV, DPV and EIS).
- Kinetics and thermodynamics of electrochemical reactions.
- Synthesis and Nanofabrication of nanomaterials including 2D nanomaterials.
- Green synthesis of carbon based nanomaterials.
- Material characterization through (FTIR, UV, SEM, EDS, XRD, BET).

Master of Philosophy in Chemistry

Bahauddin Zakariya University Multan [2012 – 2014]

City: Multan | **Country:** Pakistan | **Type of credits:** CGPA | **Number of credits:** 3.35/4.00 | **Thesis:** Development of Enrichment Methodology of Transferrin on Functionalized Polymers

- Separation Science and Hyphenated Techniques.
- Synthesis, fabrication and functionalization of nanomaterials.
- Functionalization of polymers like IMAC and Hydrazide functionality.
- Knowledge of MALDI-TOF-MS data interpretation.

PUBLICATIONS

Naqvi, S. T. R., Ahmad, J., ul Haq, M. N., Hina, M., Fatima, B., Majeed, S., & Naqvi, S. M. A. (2023). Quantitative evaluation of oxidative stress in terms of H2O2 in smokers and nonsmokers serum samples. Microchemical Journal, 190, 108699.

Naqvi, S. T. R., Rasheed, T., Nawaz, R., Fatima, B., Hussain, D., Majeed, S., ... & Faraz, A. (2022). Octylamine as environment friendlier colorimetric detection probe for hazardous 2, 4, 6-Trinitrophenol from wastewater samples. Chemosphere, 293, 133537.

Nawaz, R., Naqvi, S. T. R., Fatima, B., Zulfiqar, N., Farooq, M. U., Haq, M. N. U., ... & Khan, W. Q. (2022). Cost-effective fabrication, antibacterial application and cell viability studies of modified nonwoven cotton fabric. Scientific Reports, 12(1), 2493.

Hasan, T., Naqvi, S. T. R., Farooq, M. U., Ali, F., Nawaz, R., & Majeed, S. (2021). Electrochemical Sensing of Formic Acid on Dimethyl Glyoxime-Carbon Paste Electrode. International Journal of Advanced Research in Medicine and Sciences, 2(2), 35-42.

Danish, S., Nawaz, R., Naqvi, S. T. R., Ali, F., Farooq, M. U., & Majeed, S. (2021). Silica Modified Copper Clusters and Carbon Nanotubes Composite for Electrochemical Sensing of Glucose and Hydrogen Peroxide. International Journal of Advanced Research in Medicine and Sciences, 2(2), 23-34.

Younas, A., Rashid, H. N., Hussain, D., Naqvi, S. T. R., Khan, M. A., Fatima, B., & Majeed, S. (2021). Chlorfenapyr containing anions uptake from industrial wastewater by ethylene glycol functionalized benzyl dimethyl tetradecyl ammonium bromide membrane. Journal of Environmental Management, 284, 112017.

Naz, S., Rasheed, T., Naqvi, S. T. R., Hussain, D., Fatima, B., ul Haq, M. N., ... & Ibrahim, M. (2020). Polyvinylpropyllidone decorated manganese ferrite based cues for the efficient removal of heavy metals ions from waste water. Physica B: Condensed Matter, 599, 412559.

Naqvi, S. T. R., Rasheed, T., Majeed, S., Hussain, D., Fatima, B., ul Haq, M. N., ... & Noon, T. (2020). Nitrogen doped carbon quantum dots conjugated with AgNi alloy nanoparticles as potential electrocatalyst for efficient water splitting. Journal of Alloys and Compounds, 847, 156492.

Naqvi, S. T. R., Rasheed, T., Hussain, D., Majeed, S., Fatima, B., ul Haq, M. N., ... & Nawaz, R. (2020). Development of molecularly imprinted magnetic iron oxide nanoparticles for doxorubicin drug delivery. Monatshefte für Chemie-Chemical Monthly, 151, 1049-1057.

Naqvi, S. T. R., Rasheed, T., Majeed, S., Rani, Z., Nawaz, R., & Ashiq, M. N. (2020). Development of nitrogen doped carbon dots modified CuCo alloy nanoparticles for potential electrocatalytic water splitting. Journal of Molecular Liquids, 309, 113111.

Naqvi, S. T. R., Nawaz, R., Hussain, D., Majeed, S., & Ashaq, R. (2020). Water Dispersed Aspartame@ Graphene Oxide Nanosensor for Electrochemical Oxidation and Sensing of Atenolol. JOURNAL OF NANOSCOPE (JN), 1(01), 9-20.

Naqvi, S. T. R., Rasheed, T., Ashiq, M. N., ul Haq, M. N., Majeed, S., Fatima, B., ... & Shafi, S. (2020). Fabrication of iron modified screen printed carbon electrode for sensing of amino acids. Polyhedron, 180, 114426.

Naqvi, S. T. R., Rasheed, T., Hussain, D., ul Haq, M. N., Majeed, S., Ahmed, N., & Nawaz, R. (2020). Modification strategies for improving the solubility/dispersion of carbon nanotubes. Journal of Molecular Liquids, 297, 111919.

Naqvi, S. T. R., Shirinfar, B., Hussain, D., Majeed, S., Ashiq, M. N., Aslam, Y., & Ahmed, N. (2019). Electrochemical sensing of ascorbic acid, hydrogen peroxide and glucose by bimetallic (Fe, Ni)− CNTs composite modified electrode. Electroanalysis, 31(5), 851-857.

Naqvi, S. T. R., Shirinfar, B., Majeed, S., Najam-ul-Haq, M., Hussain, D., Iqbal, T., & Ahmed, N. (2018). Synthesis, design and sensing applications of nanostructured ceria-based materials. Analyst, 143(23), 5610-5628.

BOOK CHAPTERS

Bioinspired Prosthetic Interfaces for Bioelectronics

Saadat Majeed, a* Muhammad Umer Farooq, a **Sayed Tayyab Raza Naqvi** a, Naeem Akhtar Khan, c Batool Fatima, b Dilshad Hussain,d Fahad Ali, a Muhammad Najam Ul Haq, a

MOFs-based Electrochemical Sensors for Hydrogen Peroxide

Saadat Majeed, a* Muhammad Umer Farooq, a Batool Fatima, b Muhammad Najam Ul Haq, a Naeem Akhtar Khan, c Dilshad Hussain,d Saima Anjum, e Fahad Ali, a **Sayed Tayyab Raza Naqvi** a

MOFs Based Electrochemical Sensors for Glucose

Saadat Majeed, a* Muhammad Umer Farooq, a Batool Fatima, b Muhammad Najam Ul Haq, a Naeem Akhtar Khan, c Dilshad Hussain, d Saima Anjum, e Fahad Ali, a **Sayed Tayyab Raza Naqvi** a

Drugs Resistance Management in: Biochemistry of Drug Resistance; 1st Edition; Springer Nature

Bashir, N.; Ashraf, S.; Rashid, N.; **Naqvi, S. T. R**.; Majeed, S.; Murtaza, G.; Ashiq, M. N.; Najam-ul-Haq, M.

Electroanalytical techniques in biosciences: Conductometry, coulometry, voltammetry, and electrochemical sensors, Analytical Techniques in Biosciences

Saadat Majeed,**Sayed Tayyab Raza Naqvi**,Muhammad Najam ul Haq, Muhammad Naeem Ashiq;

Metal Oxide Composites for Removal of Metal Ions from Wastewater., Nano-Bioremediation: Fundamentals and Applications

Saadat Majeed* , Tahir Rasheed*, Dilshad Hussain , Hafiza Nadia Rasheed , **Sayed Tayyab Raza Naqvi** , Rahat Nawaz

CONFERENCES & SEMINARS

[22/12/2017 – 22/12/2017] Institute of Chemical Sciences, Bahauddin Zakariya University Multan
A Day Long International Conference, “Recent Challenges and Chemical Sciences"
Jointly Organized by the I.C.S BZU, Multan Pakistan and the Royal Society of Chemistry, Pakistan Local Section.

[27/03/2019 – 29/03/2019] Institute of Chemical Sciences, Bahauddin Zakariya University Multan
International Chemistry Conference, Forefronts of Chemistry, “Celebrating the Periodic Table Year"
Jointly Organized by Institute of Chemical Sciences, BZU Multan, Royal Society of Chemistry Local Section Pakistan, Higher Education Commission Pakistan and ORIC, BZU Multan Pakistan

[05/01/2022 – 05/01/2022] Institute of Chemical Sciences, Bahauddin Zakariya University Multan
Seminar on “Development of Electrochemical Energy Storage Devices and the Quest of Latest Technology”

[01/03/2022 – 01/03/2022] Institute of Chemical Sciences, Bahauddin Zakariya University Multan
Seminar on “Water Splitting in Alkaline Media”

[12/07/2023 – 12/07/2023] Institute of Chemical Sciences, Bahauddin Zakariya University Multan, Pakistan
Seminar on “Development of Novel Electrochromic Materials for Smart Windows Applications
Jointly Organized by Institute of Chemical Sciences, BZU Multan Pakistan, IWISTER Pakistan in STEM and SUNWAY Unversity, Malaysia.

REFERENCE

Prof. Dr. Najam-ul-Haq, Institute of Chemical Sciences, BZU, +92 3067552653, najamulhaq@bzu.edu.pk

Prof. Dr. Muhammad Naeem Ashiq Institute of Chemical Sciences, BZU, +92 3009879344, naeembzu@bzu.edu.pk

Dr. Saadat Majeed (Associate Professor) Institute of Chemical Sciences, BZU, +92 333 6128191, saadat.majeed@bzu.edu.pk