



## Syed Fazil Farukh

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### ABOUT ME

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Experienced Lecturer and Instrumentation Specialist with over 13 years in scientific research, instrumentation training, and laboratory management. I currently serve as Lecturer and Quality Manager at the Central Hi-Tech Laboratory, University of Agriculture Faisalabad Pakistan. I am responsible for ISO-17025 accreditation operations, advanced laboratory equipment handling, and training over 500 researchers, faculty, and postgraduate students across Pakistan. **My research focuses on nanomaterials and their applications in energy storage (batteries & Supercapacitors) and biological sciences.** I have authored multiple high-impact publications. I also serve as technical lead on multi-million-dollar projects funded by the Asian Development Bank (ADB) and Higher Education Commission (HEC).

### WORK EXPERIENCE

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**Central Hi-Tech Laboratory, University of Agriculture Faisalabad (UAF) – Faisalabad, Pakistan**

**City:** Faisalabad | **Country:** Pakistan

#### Lecturer

[ 01/08/2014 - Current]

#### Teaching and Academic Responsibilities

- Deliver undergraduate and postgraduate lectures in advanced instrumentation and materials science.
- Supervise students in applied physics, material science, and nanotechnology domains.
- Conduct hands-on training programs for students and researchers on analytical and characterization instruments.

#### Laboratory Operations and Quality Assurance

- Act as **Quality Manager and Focal Person** for maintaining ISO-9001:2015 and ISO-17025 certifications.
- Standardize lab protocols and manage documentation, audits, and corrective actions.
- Ensure full compliance with PNAC accreditation and international best practices in laboratory operations.

#### Technical Expertise and Equipment Handling

- Operate and provide training on a wide range of advanced equipment including:
- Scanning & Transmission Electron Microscope (SEM/TEM)
- Gas Chromatograph (GC)
- High Performance Liquid Chromatograph (HPLC)
- Atomic Absorption Spectrometer (AAS), XRD, UV-VIS Spectrophotometer, Freeze Dryer, Zeta sizer, Flame photometer and proximate Analysis.
- Lead troubleshooting, repair, and maintenance operations across laboratory sections.

#### Capacity Building and Outreach

- Conduct national-level hands-on workshops on analytical instrumentation and energy materials.
- Serve as **Resource Person** for teacher training, laboratory capacity building, and ISO awareness.
- Trained over 500 participants from 30+ universities and R&D labs in the last 5 years.

**Government Islamia College, Railway Road, Lahore – Lahore, Pakistan**

**City:** Lahore | **Country:** Pakistan

## Lecturer (Internee)

[ 01/06/2010 – 30/06/2011 ]

### Academic Teaching

- Delivered lectures in physics and electronics to undergraduate classes as part of HEC's internship program.
- Developed lecture notes, assignments, and mock tests for internal evaluations.

### Curriculum Development

- Assisted senior faculty in redesigning lab manuals and integrating multimedia learning.
- Initiated student discussion circles and academic competitions to boost engagement.

 **Central Hi-Tech Laboratory, University of Agriculture Faisalabad** – Faisalabad, Pakistan

**City:** Faisalabad | **Country:** Pakistan

## Research Officer

[ 01/08/2011 – 31/07/2014 ]

### Technical Responsibilities

- Operated and maintained critical analytical equipment (SEM, GC, AAS).
- Calibrated instruments and managed sample analysis for industrial and academic clients.

### Team Management

- Led a team of technicians for equipment upkeep, part replacement, and performance audits.
- Trained junior staff in standard safety, SOP adherence, and operation of key devices.

### Process Improvement

- Contributed to the automation of record-keeping and result management through digital interfaces.
- Drafted internal manuals and safety procedures tailored for advanced laboratory practices.

## EDUCATION AND TRAINING

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### PhD in Physics (February 2026)

*University of Agriculture Faisalabad* [ 01/09/2021 – 24/02/2026 ]

**City:** Faisalabad | **Country:** Pakistan | **Field(s) of study:** Physics | **Final grade:** CGPA 3.87/4.00 | **Thesis:** Investigation of Electrochemical Energy Storage Potential of Selenium-Based Composite Materials

### Key Contributions

- Synthesized Zn-doped NiSe nanorods and developed  $Zn_{0.06}Ni_{0.94}Se/rGO$  composites.
- Fabricated flexible binder-free electrodes via electrospinning using nanocomposites and PANI/PVDF matrix.
- Achieved high capacitance, environmental safety, and potential for flexible hybrid supercapacitors.

### MS in Electronics Engineering

*International Islamic University Islamabad (IIUI)* [ 01/08/2008 – 31/08/2010 ]

**City:** Islamabad | **Country:** Pakistan | **Final grade:** CGPA 3.5/4 | **Thesis:** Industrial Applications of Fuzzy Time Controls in Discrete Event Systems

### Major Courses:

- Advanced Digital Signal Processing
- Adaptive Control Systems
- Pattern Recognition
- Fuzzy Logic Systems
- Stochastic Processes

### MSc in Physics

*University of the Punjab, Lahore* [ 01/08/2005 – 31/08/2007 ]

**City:** Lahore | **Country:** Pakistan | **Field(s) of study:** Physics

### Major Courses:

- Solid State Physics

- Quantum Mechanics
- Classical Electrodynamics
- Computational Physics
- Electronics Theory & Lab

## BSc in Mathematics & Physics

Islamia College Civil Lines, Lahore [ 01/08/2003 - 31/07/2005]

**City:** Lahore | **Country:** Pakistan

## PUBLICATIONS

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[2026]

**Conductive additive (carbonaceous materials) - Induced changes in electrochemical properties of lanthanum phosphate for energy storage devices.**

**Authors:** Hakim, M., Akbar, M. L., Khawar, M. R., Aslam, R., AboEl-Nasr, A. B., Ullah, A., Farukh, S. F. B., Ali, H. T., Javed, Y., & Choi, D. | **Journal Name:** Materials Science in Semiconductor Processing | **Volume, Issue and Pages:** 210,1 110654. (IF 4.6)

[2026]

**A Study on Biological Potential of PEG–Chitosan Dually Functionalized Silver Oxide Nanomaterials.**

**Authors:** Ishfaq, S., Bashir, A., Abbas, M. K., Aslam, R., Azam, M., Farukh, S. F. B., & Javed, Y. | **Journal Name:** Journal of Optoelectronic and Biomedical Materials | **Volume, Issue and Pages:** 18(1), 32–48. (IF 1.1)

[2025]

**Optimization of zinc doping in nickel selenide nanorods for efficient hybrid energy storage devices.**

**Authors:** Farukh, S. F. B., Javed, Y., Qadir, M. B., Jamil, Y., & Sarfraz, R. A. | **Journal Name:** Inorganic Chemistry Communications | **Volume, Issue and Pages:** 159, 114108. (IF 5.4)

[2025]

**Nickel Selenide-Loaded PANI/PEO Fibers for Boosted Wound Healing Response in Rabbits**

**Authors:** 2. Shah, S. A. H., Farukh, S. F. B., H. S. U. B., Abbas, M. K., Anjum, S., Chudhary, A. A., & Javed, Y. | **Journal Name:** Polymers for Advanced Technologies. | **Volume, Issue and Pages:** 36(3), e70156. (IF 3.4)

[2025]

**Boosted wound healing and anticancer potential of polymer functionalized cerium oxide nanomaterials**

**Authors:** 3. Abbas, M. K., Javed, Y., Shad, N. A., Rasul, A., Bashir, A., Farukh, S. F. B., ... & Choi, D. | **Journal Name:** Journal of Trace Elements in Medicine and Biology. | **Volume, Issue and Pages:** 78, 127681. (IF 3.3)

[2025]

**Polymer-Modified Manganese Oxide Nanoparticles for Enhanced Wound Healing Properties**

**Authors:** Hussain, M. N., Abbas, M. K., Shad, N. A., Farukh, S. F. B., & Javed, Y. | **Journal Name:** BioNanoScience. | **Volume, Issue and Pages:** 15, 1–12. (IF 3.2)

[2025]

**Decoding Gait Intention: Machine Learning and Neuroplasticity in Fnr1r Based Brain-Computer Interfaces**

**Authors:** Muhammad Khawar Abbas, Muhammad Zulqarnain, Aisha Sethi, Farooq Bashir Butt, Muhammad Shahzad Khan, Abdul Wahab, Mudassar Mezher, Rida Sadiqqe, Syed Fazil bin Farukh, Asif Mirza | **Journal Name:** Frontier in Medical & Health Research | **Volume, Issue and Pages:** 3,10,2025, 587–603. (IF 3.0)

[2024]

**Oxygen vacancy-rich Ni(OH)<sub>2</sub>-ZnWO<sub>4</sub> composites as an effective electrocatalyst for water splitting**

**Authors:** 4. Atif, M., Ullah, A., Shad, N. A., Fatima, J., Farukh, S. F. B., Zahid, U., Geng, D., & Javed, Y. | **Journal Name:** Inorganic Chemistry Communications | **Volume, Issue and Pages:** 158, 113826. (IF 5.4)

[2013]

**Autonomous Air Conditioning System**

**Authors:** Farukh S.F.B., Saleem Khan M. | **Journal Name:** International Journal of Computer and Electrical Engineering | **Volume, Issue and Pages:** 5(5), 423-426.

[2013]

**A new approach of syrup manufacturing by using time control discrete event system**

**Authors:** 6. Farukh, S. F. B., & Khan, M. S. | **Journal Name:** International Journal of Computer and Electrical Engineering | **Volume, Issue and Pages:** 5(2), 137-141.

[2012]

**Fuzzy Logic Based Traffic Control System. Sensors & Transducers Journal**

**Authors:** 7. Abbas, M., Khan, M. S., Ali, N., & Farukh, S. F. B. | **Journal Name:** Sensors & Transducers Journal | **Volume, Issue and Pages:** 136(1), 132-146.

## PROJECTS

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**Asian Development Bank (ADB)-Funded Project: Climate Smart Agriculture, GHG Mitigation**

**Total Grant: USD 3 Million**

**Role:** CO-PI: Research and Development Lead for establishment of GHG Monitoring Lab

- Designed field-level MRV systems for GHG emissions in rice systems.
- Supervised capacity-building modules and procurement of advanced GHG analyzers.

**HEC-Funded ICT Project: Smart Campus & Lab Modernization at UAF (Submitted)**

**Total Grant: PKR 244.4 million**

**Role:** Digital Transformation Coordinator

- Deployed Laboratory Information Management System (LIMS).
- Digitized workflows, calibration logs, and integrated instruments with data servers.
- Led procurement and commissioning of 5+ advanced instruments.

## CERTIFICATIONS & PROFESSIONAL TRAININGS

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### **IRCA Certified Lead Auditor for ISO-9001:2015 (UK-Certified)**

### **ISO-17025 Training (Pakistan National Accreditation Council, PNAC)**

**Instrument-Specific Trainings: SEM (2015), XRD (2016), GC (2016), HPLC (2019), TEM (2017)**

### **One-Year Operational Training – Xinjiang Agricultural University, China (2016-2017)**

- Instrument Operational and Maintenance training including
- SEM, TEM, PCR, XRD GC and HPLC

### **GHG Emission Training – IRRI, Philippines (2024)**

- International Rice Research Institute (IRRI) certified GHG measurement expert from rice field.
- Sample preparation and analysis for GHG on Gas Chromatograph and TGA.

### **Customized Hands-On Training Series – UAF (2018–2025)**

Impart Hands-On Training as Resource Person on Laboratory Installed Instruments, including

- Gas Chromatograph
- Scanning Electron Microscope
- Zeta analyzer (DLS) & UV-Vis Spectrophotometer
- Proximate Analysis
- General Laboratory Instruments

## BOOK CHAPTERS / MANUALS

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### **Laboratory Quality & Technical Manual – ISO 17025**

- Standard Operational Procedures (SOPs)
- Quality Manual
- Technical Manual

### **Quality and Technical manuals ISO-9001:2015 Compliance**

- Standard Operational Procedures (SOPs)

### **Chapters in: Principles of Analytical Chemistry, Caravan Book House**

1. Basic Electronics in Instrumental Analysis
2. Laboratory Quality Management

### **Hands-On Training Manual**

1. SOPs/Protocols for Training
2. Training Manual

## ESTABLISHED OF NEW LABORATORY SETUPS

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### New Laboratory Setups to serve the Researchers, Industry and R&D institutions

1. Established Water (Irrigation and Drinking) Testing Laboratory
2. Established Proximate Analysis (Food, Feed and Crop) Laboratory

## PROFESSIONAL SKILLS

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### Analytical Instruments: SEM, TEM, XRD, HPLC, GC, AAS, UV-Vis, Zeta Sizer, Flame Photometer and Proximate Analysis.

13 years of experience of operation and maintenance of analytical equipment

**Standards: ISO 9001, ISO 17025 (Lead Auditor & Quality Manager) Software:**

**Origin Pro, Lab Ware LIMS, MS Office Suite, MATLAB (Basic)**

## SKILLS

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Microsoft Office / Microsoft Excel / Microsoft Power point / Microsoft Word / SPSS / STATA

## LANGUAGE SKILLS

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**Mother tongue(s):** Urdu

**Other language(s):**

### English

**LISTENING C2 READING C2 WRITING C2**

**SPOKEN PRODUCTION C2 SPOKEN INTERACTION C2**

### Chinese

**LISTENING B1 READING B1 WRITING B1**

**SPOKEN PRODUCTION B1 SPOKEN INTERACTION B1**

*Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user*