Muhammad Salman Habib

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Google Scholar: https://scholar.google.com/citations?user=MifwywEAAAAJ&hl=en
Research Gate: https://www.researchgate.net/profile/Muhammad-Salman-Habib
UET Official Website: https://staff.uet.edu.pk/profile/1791

Research Interests

Wearable Electronics, Piezoelectric Materials, Dielectrics, Perovskite Materials Piezo-catalysts, Nanomaterials, Flow Batteries, Batteries, Fuel Cells, Electrode Materials,

EDUCATION

Ph.D. Metallurgical & Materials Engineering **CGPA: 3.80/4.00**
University of Engineering & Technology Lahore, Pakistan Percentage: 93.75 %
Duration: September 2021 – September 2024
Ph.D. Thesis: *Evolution of Structure and Electrical Property Relations in Lead-Free Piezoceramic Flexible Thick Films by Electrophoretic Deposition for Renewable Energy Applications*

MSc. Materials Science and Engineering **CGPA: 3.88/4.00**
University of Engineering & Technology Lahore, Pakistan Percentage: 96.75 %
Duration: September 2018 – August 2020
MSc Thesis: *Electrical Characterization of Thick Coatings of Barium Calcium Zirconium Titanate (BCZT)*

B.S. Metallurgical and Materials Engineering (Metal-04660) **CGPA: 3.38/4.00**
University of Engineering and Technology (UET), Lahore, Pakistan Percentage: 82.75 %
Duration: September 2013 – August 2017

RESEARCH AND TECHNICAL EXPERIENCE

Teaching Fellow at Department of Metallurgical & Materials Engineering
University of Engineering & Technology Lahore, Pakistan *(December 2021 – Present)*
Subjects: Foundry Engineering; Industrial Health and Safety Engineering; Powder Metallurgy; Computational Methods in Materials Engineering, Materials and Technology.

Foundry Engineer at Foundry Service Center (Additional Charge)
University of Engineering & Technology Lahore, Pakistan *(December 2021 – Present)*

Visiting Research Scholar
INTI International University Nilai, Malaysia *(November 2023 –December 2023)*

Graduate Research Assistant at Metallurgical & Materials Engineering (2 Year Experience)
University of Engineering & Technology Lahore, Pakistan *(November 2018 –November 2020)*

Internship

Pakistan Council of Scientific and Industrial Research Lahore Pakistan (PCSIR) *(Duration July-August 2015)*
Millat Equipment Limited *(Duration July-August 2016)*

Shalimar Steel Pvt Limited ***(****Duration August 2015)*

RESEARCH ACHIEVEMENTS

Journal Publications (Total Impact Factor ~ 16)

- **Title:** Microwave-assisted Fabrication and Characterization of Carbon Fiber-Sodium Bismuth Titanate (BNT) Composites. Fareeha Azam, Muhammad Asif Rafiq *, Furqan Ahmed, Adnan Maqbool, Osama Fayyaz, Zerfishan Imran, **Muhammad Salman Habib**, R. A. Shakoor **Crystals; (IF= 2.4); DOI : https://doi.org/10.3390/cryst14090798**

- **Muhammad Salman Habib**, Tanveer Uz Zamaan, Muhammad Asif Rafiq, Hurraira Hashim, Ali Raza, Adnan Maqbool, Khushnuda Nur, Imran Hussian Khan, Bilal Anjum Ahmed, Abbas Saeed Hakeem, Mohsin Saleem, Rizwan Ahmed Malik, **"**Experimental determination of electrophoretic deposition parameters and electrical characterization for $K_{0.5}Na_{0.5}NbO_3$ perovskite thick films for energy harvesting applications**",** DOI **:**https://doi.org/10.1016/j.matchemphys.2024.129074 **Materials Chemistry and Physics (IF~4.3)**
- Nirma Shaheen, Rabia Nazar, Umer Mehmood, Syed Ali Raza, Fahad Iftikhar, Rimsha Naz, **Muhammad Salman Habib,** Muhammad Asif Rafiq, Samrina Sharif, Muqaddas Farooq Development of Polyaniline/Polyvinylpyrrolidone (PANI/PVP) Composite Films for Piezoresistive Strain-Sensing Applications, Arabian Journal for Science and Engineering DOI: 10.1007/s13369-023-08324-4 **(IF~ 2.807)**
- Muhammad Kashif, **Muhammad Salman Habib,** Muhammad Asif Rafiq**,** Moaz Waqar, Muhammad Asif Hussain, Ayesha Iqbal, Mehboob Ahmed Abbasi, Shahid Saeed, *Synthesis and Sintering of $SrTiO_3$-ZnO Ceramics: Role of ZnO content on microstructure and dielectric properties***, Synthesis and Sintering, (IF~1.6)**
- Kiran Zahra, **Muhammad Salman Habib**, Muhammad Athar *"Boosting Photocatalytic Activity Using Vanadium Doped Titanium Oxide with Reduced Graphene Oxide (RGO)/Semiconductor Nanocomposites"* **Journal of Sustainable Materials Processing & Management,** DOI: https://doi.org/10.30880/jsmpm.2023.03.01.004
- Muhammad Haseeb-ur-Rehman, Rabia Nazar, Saima Yaseen, Naveed Ramzan**, Muhammad Salman Habib** "Development of PANI-TPU/MWCNTs based nanocomposites for piezoresistive strain sensing applications" **Material Letters,** DOI: https://doi.org/10.1016/j.matlet.2022.133110 **(IF~3.423)**
- **Muhammad Salman Habib**, Muhammad Asif Rafiq, Amjad Ali, Qaisar Khushi Muhammad, Ahmad Shuaib, Amer Shahzad, Sadia Dar, Muhammad Mannan Ali "*Improved sintering and impedance studies of CuO-doped multiferroic (0.98 Ba0. 85Ca0. 15)(Zr0. 1Ti0. 9)· O30. 02BiFeO3 ceramics",* **Journal of Applied Physics A**, DOI: https://doi.org/10.1007/s00339-022-05370-x **(IF~2.983)**

- **Muhammad Salman Habib,** Muhammad Asif Rafiq, Adnan Maqbool, "*Significantly enhanced structural, dielectric and impedance properties of BCZT-BFO sensors*", **Journal of Sustainable Materials Processing & Management**, DOI: https://doi.org/10.30880/jsmpm.2022.02.01.005

Journal Publications (Submitted/Under Review)

- **Nano Research; (IF= 9.5) Title:** Ge Doping: A Pathway to Enhanced Optoelectronic and Energy Storage Performance in Fe2O3/PANI nanocomposites. Aayasha Negi; Minakshi Pandey; Mohamed Taha Yassin; Fatimah O. Al-Otibi; Khalid Maniah; Sumit Ringwal; **Muhammad Salman Habib**; Muhammad Asif Rafiq ***Manuscript Number: NARE-D-24-02148***

- **Solid State Science; (IF= 3.5) Title:** Electrical performance and Thermal behavior of niobium-based bismuth sodium titanate-strontium titanate composite for renewable energy applications. Ali Ahmad Khan; ***Muhammad Salman Habib;*** Adnan Maqbool; Imran Hussian Khan; Muhammad Asif Hussain; Mahnoor Nawaz; Mohsin Saleem; Rizwan Ahmed Malik ***Manuscript Number: SSSCIE-D-24-00450***

- **Journal: Applied Catalysis A, (IF=5.5) Title:** Environmental Remediation by Enhanced Piezo Catalytic Activity of Barium Calcium Zirconium Titanate (Ba0.85Ca0.15Zr0.10Ti0.90O3) and Strontium Hexaferrite (SrFe12O19) ; Authors: Muhmmad Kashif; ***Muhammad Salman Habib***; Ehtashm ur Rehman; Sarmad Uzair; Ali Imran; Adnan Maqbool; Imran Hussain Khan ***Manuscript Number: APCATA-D-24-00572***

Professional Affiliations and Editorial Board

- **Journal of Biotechnology & Biomaterials (ISSN: 2155-952X)**
  https://www.omicsonline.org/editor-profile/muhammad-salman-habib/

Book Chapters

- **Muhammad Salman Habib,** Muhammad Asif Rafiq, Qaisar Khushi, *"Fabrication of Ceramic Nano Powder Processing Techniques by Solid State Synthesis", in Book* ***"Nanofabrication"*** **(Publisher: Taylor and Francis)** https://doi.org/10.1201/9781003083351
- **Muhammad Salman Habib,** Muhammad Asif Rafiq *"Amelioration of Perovskite Nanomaterials for Advance Energy Applications",* **(Publisher: Bentham Science)** DOI: 10.2174/9789815238846124010004
- **Muhammad Salman Habib,** Muhammad Asif Rafiq *"Nano Characterization Techniques",* **(Publisher: Bentham Science) (Book to be published in soon 2023-24)**

Conferences

- Presented at 18th International Symposium of Advanced Materials (ISAM-23) organized by National Center of Physics Islamabad on 2-6 October 2023.
- Keynote Speaker on topic of "Functional and Novel Perovskite Materials for Biomedical and EnergyHarvesting Applications" presented at the International Scientific Conference; Applications of Chemistry in Nanosciences and Biomaterials Engineering on 28-30 June 2023
- Presented at International Conference on Innovation and Technopreneurship (ICIT) 2022 on 22 & 23 September organized by INTI International University Malaysia.
- Presented at International Workshop on Recent Trends in Functional Nanomaterials for Technological Applications held on August 2-3, 2022, by Center of Nanoscience and Nanotechnology (CNN), Amity University Mumbai.
- International symposium on nanoscience and its applications held last December 2-3, 2021
  Significantly enhanced structural, dielectric and impedance properties of BCZT-BFO sensors" (poster presentation).
- Thick coatings by electrophoretic deposition on metallic substrate for the applications of energy materials. International conference on energy, water, and environment – icewe-2021 (poster presentation).
- synthesis of piezoceramic thick films on flexible substrate for energy storage applications international conference on energy, water, and environment – icewe-2021 (poster presentation).
- Influence of ZnO microstructure and impedance properties of srtio3 for high efficiency of thermoelectric ICAMET-21 (poster presentation)
- Synthesis and Characterization of SrZrO3 modified BiFeO3-BaTiO3 (BFBTSZ) lead-free piezoceramics. ICAMET-21 (poster presentation)
- Two-day Winter School Workshop at Department of Chemical Engineering, COMSATS University Islamabad Lahore Campus.
- Nanotalk attended and organized by MAHARAJA AGRASEN UNIVERSITY (NAAC ACCREDITED)

CONTINUING PROFESSIONAL DEVELOPMENT (05 CPD Points) (PEC No: Metal -04660)

- 01 CPD Point on ISAM held on 2-6 October 2023
- 01 CPD Point on External and Internal Factors that Impact Procurement Process by Pakistan Engineering Council (PEC) on 14 April 2022
- 01 CPD Point on Elevate Your Leadership Skills to Take Your Organization to Next Level by Pakistan Engineering Council (PEC) on 07 April 2022
- 0.5 CPD Point on Be Your Own Boss by Amazon by Pakistan Engineering Council (PEC) on 21 June 2021
- 0.5 CPD Point on LINUX- A free and open resource operating system for house, office, teaching, and research by Pakistan Engineering Council (PEC) on 31 May 2021
- 01 CPD Point on Entrepreneurship for Engineers by Pakistan Engineering Council (PEC) on 10 March 2021

- 01 CPD Point on Participation in ICEWE-21 by Pakistan Engineering Council (PEC) on 31 March 2021

PROJECTS

- ✓ Comparison of Cold Sintering and Conventional Sintering of Bismuth Ferrite
- ✓ Electrophoretic Deposition of KNN on Metallic Nicke Substrate and It Electrical Properties
- ✓ Piezo catalytic Performance of BCZT and SrH
- ✓ Electrical Characterization of Thick Films of BCZT.
- ✓ Electrophoretic Deposition of KNN based ceramic materials for Biomedical application on Stainless Steel
- ✓ Thick Films of Hexaferrites on Flexible metal substrate
- ✓ Thin Films of BNT-BT on Nickal substrate for the electrical and mechanical applications.
- ✓ Optimization of Heat treatment parameters of cylindrical Head for two wheelers
- ✓ Influence of ZnO on SrTiO3
- ✓ Optimization of electrical properties of Geopolymers.
- ✓ Design and Interpretation of Oriented BF-BT structure of ceramics for high energy applications.

TECHNICAL SKILLS

- **Characterization Techniques:**
  - Atomic Force Microscopy (AFM)
  - Energy Dispersive X-ray Spectroscopy (EDX)
  - Fourier Transform Infrared Spectroscopy (FTIR)
  - Dilatometry
  - Impedance Spectroscopy
  - X-Ray Diffraction (XRD)
  - Solid works
  - XPS analysis
  - BET surface area analysis
  - TGA/DTA analysis

AWARDS AND ACHIEVEMENTS

- ✓ 2nd Position at Pakistan Association of Automotive Parts and Accessories Manufacturers (PAAPAM)-2022 for the project "Design of Piezo Nano generator for energy harvesting from pedestrians and automotives"
- ✓ Participated in 1st Engineering Capstone Expo-2022, Held at Faletti's Hotel on September 19, 2022.
- ✓ Awarded Teaching Fellowship by University of Engineering and Technology Lahore, Pakistan.
- ✓ Awarded the prestigious scholarship by University of Engineering and Technology with Graduate Assistantship for the Masters's program. (2018)
- ✓ Overall 2nd position of a student at Metallurgical and Materials Engineering Department UET Lahore.
- ✓ Winner of the award at Pakistan Association of Automotive Parts and Accessories Manufacturers (PAAPAM)-2020
- ✓ Selected for the Prime Minister free laptop scheme for outstanding students (2017 Pakistan)

LANGUAGES

Sr.No.	Language	Proficiency	Evaluation Criteria	Score
1	Urdu	Native	-	-
2	English	Fluent	-	-

REFERENCES

Will be provided on demand.