

Prof. Dr. Fayaz Hussain

Professor & Chairman,
Department of Materials Engineering,
NED University of Engineering and Technology,
University Road, Karachi, 75270
Pakistan , Mobile: +92-333-3946604
Engrfayazned@gmail.com,
Fhussain@neduet.edu.pk,



Fayaz Hussain joined the Department of Materials Engineering in 2007, first as a Lecturer, then after Assistant Professor in 2010 and promoted as an Associate Professor in 2020, then again promoted as a Professor in 2022. Prior to this, he worked three years in metal industry. He is also editorial board member of journals of “Frontiers in Materials” and “Electroactive Materials”. He has completed his PhD from the University of Sheffield, England, UK, in 2016-2017, worked on “KNN based lead-oxide free piezoelectric ceramics”. This ABO_3 system has been studied from the perspective of optimizing its performance for multilayer actuators; potentially for energy harvesting applications under the supervision of Professor Ian Reaney at the University of Sheffield. To fabricate the multilayers, a novel Wet-Multilayer-Method (WMM) was also developed to overcome the issues of delamination during firing of multilayers actuators. He has authored/co-authored publications in well reputed journals, around **38 papers** including key articles on piezoelectric, capacitor and microwave dielectric ceramics in bulk and multilayers with **350-citations**, **h-index 9** and **i10-index 9** of last five years. Current research interests: Synthesis of Piezoelectric Ceramics and their multilayers, Multiferroics, Thermoelectric Ceramics and Microwave dielectrics. Characterisation Methods: LCR, impedance spectroscopy, d33 meter for piezoelectric coefficient, Vibrating Sample Magnetometer for magnetic properties, XRD Analysis, SEM/ EDX, ferroelectric testing, etc.

Academic Career

- **Ph.D.** (Functional Materials and Devices), The University of Sheffield, Sheffield, England, UK, in 2017.

***Ph.D. Synopsis:** ‘KNN based lead free piezoelectric ceramics have been studied from the perspective of optimising their performance for multilayer actuators, potentially for energy harvesting applications. To this end, the defect chemistry of KNN has been investigated under different sintering conditions, dopants (acceptors: Mn^{2+} , Ti^{4+} , Sn^{4+} in KNN_50/50 ratio; Donor: Sr^{2+} in KNN_50/50 ratio; Ta^{5+} as an isovalent in KNN-51/49 ratio; and co-dopants: Bi^{3+} and Zr^{4+} in KNN_50/50 ratio) have been incorporated into KNN to enhance the piezoelectric performance and prototype multilayers of 10 and 16 layers with inner Pt electrodes have been fabricated to demonstrate the potential of $0.942KNN-0.058BNZ+ZrO_2$ for the fabrication of multilayer actuators. This lead-free composition has the potential to replace PZT-4 and PZT-8 in piezoelectric devices for*

room temperature applications. To fabricate the multilayers, a novel Wet-Multilayer-Method (WMM) was also developed to overcome the issues of delamination during firing of MLCCs’.

- **M.E.** (Materials Engineering) from NED University of Engineering & Technology Karachi Pakistan in 2009.
- **B.E.** (Metallurgy) from Mehran University of Engineering & Technology, Jamshoro Pakistan in 2003.

Teaching Experience

- Professor in Materials Engineering Department of NED University of Engineering and Technology, Karachi (from 11th January 2022 to date).
- Associate Professor in Materials Engineering Department of NED University of Engineering and Technology, Karachi (from 04th August 2020 to 10th January 2022).
- Assistant Professor in Materials Engineering Department of NED University of Engineering and Technology, Karachi (from 22nd June 2010 to 04th August 2020).
- Lecturer in Materials Engineering Department of NED University of Engineering and Technology, Karachi (from 2nd July 2007 to 21st June 2010).

Taught the following subjects:

- **MM-204: ‘Engineering Ceramics and Refractory Materials’**
- **MY -204: ‘Refractory Materials in Metallurgical Industries’**
- **MM-302: ‘Crystallography and X-ray Diffraction Techniques’**
- **MM-402: ‘Design and Selection of Materials’**
- **MM-406: ‘Electronic, Magnetic and Optical Materials’**
- **MM-409: ‘Biomedical and Functional Materials’**
- **MM-502: ‘Production of Ferrous and Non-Ferrous Materials’**
- **MM-532: ‘Ceramic Engineering’**
- **MM-603: ‘Nano Engineering and Smart Materials’**

Job Experience

Assistant Manager: Melting Shop (Ladle Furnace) Peoples Steel Mills Ltd.
From June 2004 to June 2007:

- Experience of alloying and refining of different types of Steel Alloys, i.e. extra low carbon, low carbon, medium carbon, high carbon, low alloy, medium alloy and high alloy steels.

Q.C Engineer: (ultrasonic testing), Shashi Steel Pipe Works Pvt. Ltd. From March 2004 to June 2004:

- worked to check the lamination, internal flaws, voids etc. of steel pipes of different dia.

Research Interest

- Piezoelectric Ceramics in general
- Multilayers Capacitors and Actuators
- Microwave Dielectrics
- Multiferroic Materials

Trainings and Workshops Attended

- Operational and maintenance training on '**Vibrating Sample Magnetometer**' (VSM-EZ9) from Expert of MicroSense USA, 2019.
- Training on Laser Particle Analyser and Photospectrometer from China, Dec. 2010
- Three Days Certificate course on Solar Energy from CCEE, NED, Dec. 2010.
- Training on Hardness testers of various kinds from Shanghai China, January 2008
- Certificate course on Cathodic Corrosion protection 2009 from NED University
- Certificate course on MATLAB from NED University
- 2- Days Workshop on "Smart Materials" at NCP Islamabad in 2009.
- One Day Workshop on "Nanomaterials and Characterization Techniques" GC University Lahore in 2010.
- 2- Days workshop on "Vacuum and Thin Film

Technology" NINVAAT, NCP Islamabad in 2010.

Seminar /
Conference /
Symposia

- **Fayaz Hussain**, Iasmi Sterianou, Derek C Sinclair, Ian M Reaney, *Properties of $K_{0.50}Na_{0.50}NbO_3$ Sintered in N_2 and Air*, Ferroelectrics UK, 17-18 January 2013, IOP, University of Sheffield, Sheffield, UK.
- **Fayaz Hussain**, Iasmi Sterianou, Derek C Sinclair, Ian M Reaney, *Semiconductor Behaviour of $K_xNa_{(1-x)}NbO_3$ ($0.49 \leq x \leq 0.51$) as a function of $P(O_2)$* , Electroceramics-XIV Conference, 16-20 June 2016, Bucharest, Romania.
- Shunsuke Murakami, Amir Khesro, **Fayaz Hussain**, Dawei Wang, Derek C Sinclair and Ian M Reaney, *"Doping Effects in Lead-free Piezoelectric BT-BF based Ceramics"*, Sustainable Functional Materials April 2016, Scarborough, UK
- Dawei Wang, **Fayaz Hussain**, Amir Khesro, Antonio Feteira, Ye Tian and Ian M Reaney, *"Composition and Temperature Dependence of Piezoelectricity in KNN-based Lead-free Ceramics"*. 2016 Joint IEEE International Symposium on the Applications of Ferroelectrics, European Conference on Applications of Polar Dielectrics, Darmstadt Germany.
- **Fayaz Hussain**, Ashraf Ali, *"Elastic and Plastic Properties of Soda Lime Glass by Micro Indentation"*, ISAM 2009, Pakistan.

Publications

Last five Years: 325 Citations, H-index 8, i10-index 8

1. Wen-Bo Li, Di Zhou, Wen-Feng Liu, Jin-Zhan Su, **Fayaz Hussain**, Da-Wei Wang, Ge Wang, Zhi-Lun Lu, Qiu-Ping Wang, “High-temperature BaTiO₃-based ternary dielectric multilayers for energy storage applications with extreme high efficiency”, *Chemical Engineering Journal*, page 128760, year 2021.
2. Haojun Qian , Chenli Fan , **Fayaz Hussain** , Kaixin Song ,* , Xinjiang Luo , Weitao Su , Huanping Wang , Qingming Huang , Liu Yang, “Energy transfer between two luminescent centers and photoluminescent properties of Ca_{4-y}La₆(AlO₄)_x(SiO₄)_{6-x}O_{1-x/2}: yEu²⁺apatite structure phosphors”, *Journal of Luminescence*, Vol 235, February 2021, 117991. DOI: 10.1016/j.jlumin.2021.117991.
3. Rabeeya Iftikhar, Asma Ansari, Nadir Naveed Siddiqui, **Fayaz Hussain**, Afsheen Aman, “Structural Elucidation and Cytotoxic Analysis of a Fructan Based Biopolymer Produced Extracellularly by *Zymomonas mobilis* KIBGE-IB14”, *Carbohydrate Research*, 108223, dated: 2020/12/16.
4. W. Lou, K. Song, **F. Hussain**, B. Liu, H. B. Bafrooei, H. Lin, W. Su, F. Shi, and D. Wang, “Bond characteristics and microwave dielectric properties of (Li_{0.5}Ga_{0.5})²⁺ doped Mg₂Al₄Si₅O₁₈ ceramics,” *Ceramics International*, 2020.
5. D. Han, C. Wang, D. Lu, **F. Hussain**, D. Wang, and F. Meng, “A temperature stable (Ba_{1-x}Ce_x)(Ti_{1-x/2}Mg_{x/2})O₃ lead-free ceramic for X4D capacitors,” *Journal of Alloys and Compounds*, vol. 821, pp. 153480, 2020.
6. Shu-Zhao Hao, Di Zhou, **Fayaz Hussain**, Jin-Zhan Su, Wen-Feng Liu, Da-Wei Wang, Qiu-Ping Wang, Ze-Ming Qi, “Novel scheelite-type [Ca_{0.55}(Nd_{1-x}Bix)_{0.3}]MoO₄ (0.2 ≤ x ≤ 0.95) microwave

- dielectric ceramics with low sintering temperature”, Journal of the American Ceramic Society, vol 103, Issue 12, pages 7259-7266, year 2020.
7. Shahid Hussain Abro, **Fayaz Hussain**, Muhammad Sohail, Danial Tariq, Kamran Jawed, Rana Sanwal, Mohammed N Alghamdi, “Development and Synthesis of Composite Electrode (rGO/G/PANI) for Capacitor from Burnout Battery Powder”, Proceedings of the Pakistan Academy of Sciences: A. Physical and Computational Sciences, vol57, issue 2, pages 41-50., year 2020.
 8. S.-Z. Hao, D. Zhou, **F. Hussain**, W.-F. Liu, J.-Z. Su, D.-W. Wang, Q.-P. Wang, Z.-M. Qi, C. Singh, and S. Trukhanov, “Structure, spectral analysis and microwave dielectric properties of novel x (NaBi) $_{0.5}$ MoO $_4$ -(1- x) Bi $_{2/3}$ MoO $_4$ ($x=0.2\sim 0.8$) ceramics with low sintering temperatures,” Journal of the European Ceramic Society, 2020.
 9. **F. Hussain**, A. Khesro, Z. Lu, N. Alotaibi, A. A. Mohamad, G. Wang, D. Wang, and D. Zhou, “Acceptor and donor dopants in potassium sodium niobate based ceramics,” Frontiers in Materials, vol. 7, 2020.
 10. **F. Hussain**, A. Khesro, Z. Lu, G. Wang, and D. Wang, “Lead Free Multilayer Piezoelectric Actuators by Economically New Approach,” Frontiers in Materials, vol. 7, pp. 87, 2020.
 11. Muhammad Raz; Khan Sohail; **Hussain Fayaz**; Khesro Amir, “Phase evolution and microwave dielectric properties of (Ca/Sr)Nd $_4$ Ti $_5$ O $_{17}$ -based ceramic systems”, Materials Research Express, (**IF= 1.449**), (**September, 2019**)

12. **F. Hussain**, A. Khesro, R. Muhammad, and D. Wang, "Effect of Ta-doping on functional properties of $K_{0.51}Na_{0.49}NbO_3$," *Materials Research Express*, vol. 6, no. 10, pp. 106309, 2019.
13. D. Ahmad, M. Sohail, **F. Hussain**, H. Siddiqui, and M. Yasir, "Synthesis of Cuprous Oxide nano cubes and platelets using both electrodes of copper," *Mehran University Research Journal of Engineering & Technology*, vol. 38, no. 2, pp. 415, 2019.
14. **F. Hussain**, M. Sohail, M. U. Baig, S. Arif, and M. D. Ahmed, "Fabrication of Ultrathin Graphene Oxide Membrane for water purification using Ink-jet printing," *Journal of Space Technology*, vol. 9, no. 1, 2019.
15. S. H. Abro, M. S. Hanif, and **F. Hussain**, "On the Effect of γ -phase transformation kinetics upon microstructure response of Cold Heading Quality Steel," *NUST Journal of Engineering Sciences*, vol. 11, no. 2, pp. 51-55, 2018.
16. Danial Ahmad, Muhammad Sohail, **Fayaz Hussain**, Humair Siddiqui, and Muhammad Yasir "Effect of *pH* and *Conductivity of Electrolyte on the Synthesis of Cuprous Oxide Nano Cubes and Platelets Using Both Electrodes of Copper*", accepted (*Mehran University of Engineering and Technology Journal*) (2018).
17. Muhammad Sohail, A. D. Chandio, **Fayaz Hussain**, Maryam Sheikh, "High-Temperature Effectiveness of Ginger Extract as Green Inhibitor for Corrosion in Mild Steel", accepted, *NUST Journal of Engineering Sciences*

(2018).

18. Muhammad Ali, **Fayaz Hussain**, Muhammad Sohail Hanif, Ahmad Azmin Mohamad¹, Muhammad Tufail, "*Effect of calcination and sintering temperatures on physical properties of barium titanate ceramic*", accepted, International Journal of Electroactive Materials, (2018).
19. **Hussain, F.**, et al., *p-Type/n-type behaviour and functional properties of $K_xNa_{(1-x)}NbO_3$ ($0.49 \leq x \leq 0.51$) sintered in air and N_2* , Journal of the European Ceramic Society (2018), <https://doi.org/10.1016/j.jeurceramsoc.2018.03.013>, **IF=3.794**
20. Kausar Harun, **Fayaz Hussain**, et al., *Sol-gel synthesized ZnO for optoelectronics applications: a characterization review*, Materials Research Express, 2017.04(12).
21. Wang, D., **Hussain, F.**, Khesro, A., et al., *Composition and temperature dependence of piezoelectricity in $(1-x)(K_{1-y}Na_y)NbO_3-x(Bi_{1/2}Na_{1/2})ZrO_3$ lead-free ceramics*. American Ceramic Society, 2016: p. 1-9
22. Khesro, A., Wang, D, **Hussain, F.**, et al., *Temperature Stable and Fatigue Resistant Lead-free Ceramics for actuators*, Applied Physics Letters, 2016. 109(14).
23. S. Sami-Ullah, S.M.H. Waqar, **F. Hussain**, A. Ali, "*Synthesis of Single and Multi-Walled Carbon Nanotubes by Improved Arc Discharge Method*", Key Engineering Materials, Vols. 510-511, pp. 124-131, 2012.

24. **F.Hussain**, Ashraf Ali, “*Elastic and Plastic properties of Soda lime Glass by MicroIndentation*”, Key Engineering Materials Vol. 442 (2010) pp 294-300, Trans Tech Publications, Switzerland.

Conferences

1. **Fayaz Hussain**, Ashraf Ali, “Elastic and Plastic Properties of Soda Lime Glass by Micro Indentation”, ISAM 2009, Pakistan.
2. Umair Aftab, M. I. Abro, Khanji Harijian, Moazam Baloch, M. Aqeel Bhutto, Fayaz Hussain, “Effect Of Ceria On Mic Susceptibility Of Aluminium-Zinc Sacrificial Anode”, Conference: 2nd International Conference on Energy, Environmental and Sustainable Development (EESD 2012), At: Mehran University of Engineering and Technology, Jamshoro, Pakistan.
3. **Fayaz Hussain**, Iasmi Sterianou, Derek C Sinclair, Ian M Reaney, Properties of $K_{0.50}Na_{0.50}NbO_3$ Sintered in N_2 and Air, Ferroelectrics UK, 17-18 January 2013, IOP, University of Sheffield, Sheffield, UK.
4. **Fayaz Hussain**, Iasmi Sterianou, Derek C Sinclair, Ian M Reaney, Semiconductor Behaviour of $K_xNa_{(1-x)}NbO_3$ ($0.49 \leq x \leq 0.51$) as a function of $P(O_2)$, Electroceramics-XIV Conference, 16-20 June 2016, Bucharest, Romania.
5. Shunsuke Murakami, Amir Khesro, **Fayaz Hussain**, Dawei Wang, Derek C Sinclair and Ian M Reaney, "Doping Effects in Lead-free Piezoelectric BT-BF based Ceramics", Sustainable Functional Materials April 2016, Scarborough, UK
6. Dawei Wang, **Fayaz Hussain**, Amir Khesro, Antonio Feteira, Ye Tian and Ian M Reaney, "Composition and Temperature

Dependence of Piezoelectricity in KNN-based Lead-free Ceramics". 2016 Joint IEEE International Symposium on the Applications of Ferroelectrics, European Conference on Applications of Polar Dielectrics, Darmstadt Germany.

7. **Fayaz Hussain**, Dawei Wang, Ian Reaney, "A novel multilayer method for low cost fabrication of piezoelectric actuators", 2019 IEEE International Symposium on Applications of Ferroelectrics (ISAF), EPFL Lausanne **Switzerland, July 14-19, 2019.**
8. **Fayaz Hussain**, Muhammad Imran Khan, Muhammad Tufail, "Electrical and magnetic properties of Fe³⁺ doped SrTiO₃ Ceramics", Electroceramics XVII conference, Online, **Darmstadt 24-28 August 2020, Germany.**



Fayaz Hussain

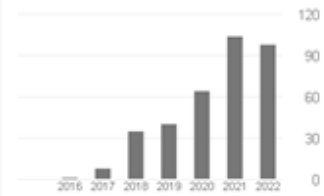
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TITLE	CITED BY	YEAR
Composition and temperature dependence of structure and piezoelectricity in (1-x)(K _{1-y} Na _y)NbO ₃ -x(Bi _{1/2} Na _{1/2})ZrO ₃ lead-free ceramics D Wang, F Hussain, A Khesro, A Feteira, Y Tian, Q Zhao, IM Reaney Journal of the American Ceramic Society 100 (2), 627-637	78	2017
Structure, spectral analysis and microwave dielectric properties of novel x (NaBi) 0.5 MoO ₄ -(1-x) Bi ₂ /3MoO ₄ (x= 0.2~ 0.8) ceramics with low sintering temperatures SZ Hao, D Zhou, F Hussain, WF Liu, JZ Su, DW Wang, OP Wang, ZM Qi, ... Journal of the European Ceramic Society 40 (10), 3569-3576	46	2020
Temperature stable and fatigue resistant lead-free ceramics for actuators A Khesro, D Wang, F Hussain, DC Sinclair, A Feteira, IM Reaney Applied Physics Letters 109 (14), 142907	44	2016
Sol-gel synthesized ZnO for optoelectronics applications: a characterization review K Harun, F Hussain, A Purwanto, B Sahrour, A Zawadzka, AA Mohamad Materials Research Express 4 (12), 122001	29	2017
High-temperature BaTiO ₃ -based ternary dielectric multilayers for energy storage applications with high efficiency WB Li, D Zhou, WF Liu, JZ Su, F Hussain, DW Wang, G Wang, ZL Lu, ... Chemical Engineering Journal 414, 128750	22	2021

RG Score = 24.21

Funded Projects:

- PI: Rs.3.5 million from Sindh HEC for “Green Energy Source and Environmentally friendly lead-oxide free piezoelectric ceramics for energy harvesting devices”
- Rs. 03 Million for PhD Project under my supervision
- Rs. 1 Million for ISP, Co-PI
- Rs. 9.8 million for NRPU-2021 on “Environmentally friendly Multiferroic Ceramics for Electronic Applications by cold sintering method”

Reward: more than Rs. 1Million from NEDUET, as financial reward for publishing the research papers in 2020 & 2021

ISP or Thesis Projects: More than 10 projects supervised and three under progress.

Editorial Board Member: Journal of Frontiers in Materials (JCR, <https://www.frontiersin.org/journals/materials#editorial-board>) & Electro-active Materials (Malaysia, <https://www.electroactmater.com/index.php/editorial-board>).

Editorial Board Member:

Journal of Advanced Dielectrics Editorial Board, Xian Jiaotong University, China

List of Publication:

- [1] Weichao Lou, Kaixin Song, **F Hussain**, Amir Khesro, Jianwei Zhao, Hadi Barzegar Bafrooei, Tao Zhou, Bing Liu, Minmin Mao, Kuiwen Xu, Ehsan Taheri-nassaj, Di Zhou, Shaojin Luo, Shikuan Sun, Huixing Lin, Dawei Wang "Microwave dielectric properties of Mg_{1-8R0}. 2Al₄Si₅O₁₈ (R= Mg, Ca, Sr, Ba, Mn, Co, Ni, Cu, Zn) cordierite ceramics and their application for 5G microstrip patch antenna" *Journal of the European Ceramic Society*, 2022
- [2] Chen Yang, Chenli Fan, **F Hussain**, Weiqing Sheng, Kaixin Song, Jun Wu, Qingming Huang, Weitao Su, Junming Xu, Shikuan Sun, Dawei Wang, "Luminescent ionic lattice occupation and wide tunable emission spectra of La₂MgZrO₆: Bi³⁺, Eu³⁺ double perovskite phosphors for white light LED" *Journal of Rare Earths*, 2022
- [3] Raz Muhammad, Haider Ali Shah, **F Hussain**, Ejaz Ahmed, Wen Lei, Dawei Wang, "Synthesis, structural, dielectric, and magnetic properties of Re₅Ti₄CrO₁₇ (Re= La, Nd)" *Journal of Materials Science: Materials in Electronics*, 2022
- [4] Shankar A Hallad, Sharanabasava V Ganachari, Manzoore Elahi M Soudagar, NR Banapurmath, Anand M Hunashyal, Islam MR Fattah, **F Hussain**, Muhammad A Mujtaba, Asif Afzal, Mohammad S Kabir, Ashraf Elfasakhany, "Investigation of flexural properties of epoxy composite by utilizing graphene nanofillers and natural hemp fibre reinforcement" *Polymers and Polymer Composites*, 2022
- [5] M. Xu, C. Fan, C. Yang, K. Song, **F. Hussain**, W. Sheng, J. Wu, H. Wang, W. Su, and Q. Huang, "Lattices selective occupation, optical spectra regulation, and photoluminescence properties of Eu²⁺ activated Ca₉La (PO₄)₇ phosphor," *Journal of Luminescence*, pp. 118197, 2021.
- [6] H. Qian, C. Fan, **F. Hussain**, K. Song, X. Luo, W. Su, H. Wang, Q. Huang, and L. Yang, "Energy transfer between two luminescent centers and photoluminescent properties of Ca_{4-y}La₆ (AlO₄)_x (SiO₄)_{6-x}O_{1-x/2}: yEu²⁺ apatite structure phosphors," *Journal of Luminescence*, vol. 235, pp. 117991, 2021.
- [7] M. Ma, K. Song, Y. Ji, **F. Hussain**, A. Khesro, M. Mao, L. Xue, P. Xu, B. Liu, and Z. Lu, "5G microstrip patch antenna and microwave dielectric properties of cold sintered LiWVO₆-K₂MoO₄ composite ceramics," *Ceramics International*, 2021.
- [8] W.-B. Li, D. Zhou, W.-F. Liu, J.-Z. Su, **F. Hussain**, D.-W. Wang, G. Wang, Z.-L. Lu, and Q.-P. Wang, "High-temperature BaTiO₃-based ternary dielectric multilayers for energy storage applications with high efficiency," *Chemical Engineering Journal*, vol. 414, pp. 128760, 2021.
- [9] R. Iftikhar, A. Ansari, N. N. Siddiqui, **F. Hussain**, and A. Aman, "Structural elucidation and cytotoxic analysis of a fructan based biopolymer produced extracellularly by *Zymomonas mobilis* KIBGE-IB14," *Carbohydrate Research*, vol. 499, pp. 108223, 2021.
- [10] W. Lou, K. Song, F. Hussain, B. Liu, H. B. Bafrooei, H. Lin, W. Su, F. Shi, and D. Wang, "Bond characteristics and microwave dielectric properties of (Li_{0.5}Ga_{0.5})²⁺ doped Mg₂Al₄Si₅O₁₈ ceramics," *Ceramics International*, vol. 46, no. 18, pp. 28631-28638, 2020.
- [11] A. Khesro, D. Wang, **F. Hussain**, R. Muhammad, G. Wang, A. Feteira, and I. M. Reaney, "Temperature dependent piezoelectric properties of lead-free (1-x) K_{0.6}Na_{0.4}NbO_{3-x}BiFeO₃ ceramics," *Frontiers in Materials*, vol. 7, pp. 140, 2020.
- [12] F. Hussain, A. Khesro, Z. Lu, G. Wang, and D. Wang, "Lead free multilayer piezoelectric actuators by economically new approach," *Frontiers in Materials*, vol. 7, 2020.
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- [14] S.-Z. Hao, D. Zhou, **F. Hussain**, W.-F. Liu, J.-Z. Su, D.-W. Wang, Q.-P. Wang, Z.-M. Qi, C. Singh, and S. Trukhanov, "Structure, spectral analysis and microwave dielectric properties of novel x (NaBi) 0.5 MoO₄-($1-x$) Bi_{2/3}MoO₄ ($x=0.2\sim 0.8$) ceramics with low sintering temperatures," *Journal of the European Ceramic Society*, vol. 40, no. 10, pp. 3569-3576, 2020.
- [15] S. Z. Hao, D. Zhou, **F. Hussain**, J. Z. Su, W. F. Liu, D. W. Wang, Q. P. Wang, and Z. M. Qi, "Novel scheelite-type [Ca_{0.55}(Nd_{1-x}Bix)_{0.3}] MoO₄ ($0.2\leq x\leq 0.95$) microwave dielectric ceramics with low sintering temperature," *Journal of the American Ceramic Society*, vol. 103, no. 12, pp. 7259-7266, 2020.
- [16] D. Han, C. Wang, D. Lu, **F. Hussain**, D. Wang, and F. Meng, "A temperature stable (Ba_{1-x}Cex)(Ti_{1-x/2}Mgx/2) O₃ lead-free ceramic for X4D capacitors," *Journal of Alloys and Compounds*, vol. 821, pp. 153480, 2020.
- [17] S. H. Abro, **F. Hussain**, M. Sohail, D. Tariq, K. Jawed, R. Sanwal, and M. N. Alghamdi, "Development and Synthesis of Composite Electrode (rGO/G/PANI) for Capacitor from Burnout Battery Powder: Composite Electrode (rGO/G/PANI) for Capacitor," *Proceedings of the Pakistan Academy of Sciences: A. Physical and Computational Sciences*, vol. 57, no. 2, pp. 41-50, 2020.
- [18] R. Muhammad, S. Khan, **F. Hussain**, and A. Khesro, "Phase evolution and microwave dielectric properties of (Ca/Sr) Nd₄Ti₅O₁₇-based ceramic systems," *Materials Research Express*, 2019.
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- [20] **F. Hussain**, A. Khesro, R. Muhammad, and D. Wang, "Effect of Ta-doping on functional properties of K_{0.51}Na_{0.49}NbO₃," *Materials Research Express*, vol. 6, no. 10, pp. 106309, 2019.
- [21] D. Ahmad, M. Sohail, **F. Hussain**, H. Siddiqui, and M. Yasir, "Synthesis of Cuprous Oxide nano cubes and platelets using both electrodes of copper," *Mehran University Research Journal of Engineering & Technology*, vol. 38, no. 2, pp. 415, 2019.
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- [23] M. A. Siddiqui, **F. Hussain**, M. S. Hanif, A. A. Mohamad, and M. Tufail, "Effect of Calcination and Sintering Temperatures on Physical Properties of Barium Titanate Ceramic," *Int. J. Electroactive Mater*, vol. 6, pp. 42-47, 2018.
- [24] **F. Hussain**, I. Sterianou, A. Khesro, D. C. Sinclair, and I. M. Reaney, "p-Type/n-type behaviour and functional properties of K_xNa_(1-x) NbO₃ ($0.49\leq x\leq 0.51$) sintered in air and N₂," *Journal of the European Ceramic Society*, vol. 38, no. 9, pp. 3118-3126, 2018.
- [25] S. H. Abro, M. S. Hanif, and **F. Hussain**, "On the Effect of γ -phase transformation kinetics upon microstructure response of Cold Heading Quality Steel," *NUST Journal of Engineering Sciences*, vol. 11, no. 2, pp. 51-55, 2018.
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Trainings / Courses and Workshops Attended

- Industrial Gases Hazard and Safety Awareness Course, August 2006.
- Certificate course on MATLAB from NED University, 2007.
- Training on Hardness testers of various kinds from Shanghai China, January 2008
- Certificate course on Corrosion protection Management 2009 from NED University
- 2- Days Workshop on "Smart Materials" at NCP Islamabad in 2009.
- 2- Days workshop on "Vacuum and Thin Film Technology" NINVAST, NCP Islamabad in 2010.
- Three Days Certificate course on Solar Energy from CCEE, NED, Dec. 2010.
- Training on Laser Particle size analyser and photo-spectrometer from China, Dec. 2010.
- One Day Workshop on "Nanomaterials and Characterization Techniques" GC University Lahore in 2010.
- Training Course on Radiation Protection for X-Ray Workers, April-2012.
- Workshops: The Sheffield Teaching Assistant Programme, April-2013.
- Sheffield University GRAD-school, May-2013.
- Training on “Vibrating Sample Magnetometer Operation and Maintenance Class” from Micro-Sense USA, January-2019.
- One Week Course Training of Auditor in 2021