



AALIA NAZIR

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OBJECTIVE

To obtain Knowledge and experience in cutting edge technologies of medical Physics that will challenge my skills to deliver efficient and reliable solution of critical and complex problems

EXPERTISE

Medical Physics
Medical Imaging
Radiation Dosimetry
Treatment Planning
Nanomedicine

AWARDS & CERTIFICATES

- PAK-UK Gateway Mobility Partnership for Faculty
- Schlumberger Foundation Award for Postdoc fellowship
- Approved HEC supervisor
- Reviewer of NRPU (HEC)
- Reviewer of international journals
- IRSIP Award by HEC
- Research Incentive Awards
- Pioneer in the field of Gel Dosimetry in Pakistan
- Merit Scholarship at MS & Masters Level

EXPERIENCE

POSTDOC RESEARCH EXPERIENCE

Ninewells Hospital, Scotland Uk • (2014-2015)

ASSITANT PROFESSOR

Institute of Physics, The Islamia University of Bahawalpur, Pakistan

LECTURER

Institute of Physics, The Islamia University of Bahawalpur, Pakistan

ACADEMIC VISITOR

Ninewells Hospital, Scotland Uk • (Jan 2007-July 2007)

EDUCATION

POSTDOC • 2015 • NINEWELLS HOSPITAL UK

PHD • 2011 • THE ISLAMIA UNIVERSITY OF BAHAWALPUR, PAKISTAN

M.SC PHYSICS • 2001 • THE ISLAMIA UNIVERSITY OF BAHAWALPUR, PAKISTAN

VOLUNTEER EXPERIENCE OR LEADERSHIP

- Director of Centre of "Women in STEM" in IUB
- Member and Alumnus of Schlumberger Foundation Faculty for the Future
- Incharge Examination at MS and BS level
- Incharge Students Affairs
- Coordinator of Physics Alumni Association
- Member of Board of faculty and Board of study
- Reviewer of different journals at international and national level
- Book Series Editor under IIP International Publishers

PUBLICATIONS

1. Khera, Ejaz Ahmad and Ullah, Hafeez and Hussain, Fayyaz and Abubakar, Shahzad and Majeed, Abdul and Tabssum, Iqra and Batool, Zahida and Nazir, Aalia and Gilanie, Ghulam, Characterization of Nickel Oxide Thin Films for Smart Window Energy Conversion Applications: Comprehensive Experimental and Computational Study. Available at SSRN: <https://ssrn.com/abstract=4235112> or <http://dx.doi.org/10.2139/ssrn.4235112>
2. Kiran Saira and Mumtaz, Umair and Imran, Muhammad and Ahmad Niaz, Niaz and Hussain, Fayyaz and Khera Ejaz Ahmad and Khalil, R. M. Arif and Nazir, Alia, Ab-Initio Investigation of Structural, Electronic and Optical Characteristics of Novel Halide Perovskites $\text{CsPb}_{1-x}\text{GexBr}_3$ ($x = 0, 0.25, 0.50, 0.75, 1$) for Photovoltaic Applications. Available at SSRN.
3. Rimsha Imran, Zahida Batool, Qaiser Jabeen, Saeed Ahmad Buzdar, Hafiz Ejaz Ahmed, Shaheen Gul, Hafeez Ullah, Aalia Nazir, Asifa Qayyum, In vivo toxicity and antibacterial assessment of $\text{Bi}_2\text{Se}_3/\text{GO}/\text{PVA}$ nanocomposite synthesized via hydrothermal route, *Materials Chemistry and Physics*, Volume 290, 2022, 126535, ISSN 0254-0584, <https://doi.org/10.1016/j.matchemphys.2022.126535>.
4. S. Kiran, U. Rasheed, M. Imran, F. Hussain, Niaz Ahmad Niaz, R. M. A. Khalil, A. Nazeer. Theoretical investigation of doped $\text{LiMg}_{1-x}\text{YxN}$ ($Y = \text{Ag, Cu, Mn, Zn}$) for RRAM application. *Journal of Ovonic Research*, 18(2),301-315, June 2022.
5. M. Z. Manzoor, Z. Batool, Y. Ali, H. M. Khan, M. Ismail, D. Ahmad, H. Ullah, A. Nazir, R. Imran. Sol-gel synthesis of topological insulator bismuth selenide nanoparticles by using different solvents. *Digest Journal of Nanomaterials and Biostructures*, Vol. 17, No. 2, pp. 649 - 659 (2022).
6. Dilshad Ahmad, Muhammad Zeewaqaq Manzoor, Rehana Kousar, H.H. Somaily, Saeed Ahmad Buzdar, Hafeez Ullah, Aalia Nazir, Muhammad Farooq Warsi, Zahida Batool, Cost effective synthesis of $\text{Cu}_x\text{Bi}_{2-x}\text{Se}_3$ photocatalysts by sol-gel method and their enhanced photodegradation and antibacterial activities, *Ceramics International*, Volume 48, Issue 22, 2022, 32787-32797.
7. Hafeez Ullah, Samina Kousar, Z. Batool, A. Nazir, G. Gilanie, S. Habib, "Quantitative measurements of DNA from human saliva and optical density difference between healthy and leukemia blood", *Pakistan journal of Physical and Mathematical Sciences*, Vol. 1, No. 1, pp. 47-58 (2022).
8. Yaseen M, Khurshed A, Ullah H, et al. In-vitro Evaluation of Anticancer Activity of Rhodamine-640 perchlorate on Rhabdomyosarcoma cell line. *Research Square*; 2022. DOI: 10.21203/rs.3.rs-1573835/v1.
9. Qayyum, A., Batool, Z., Fatima, M. et al. Antibacterial and in vivo toxicological studies of $\text{Bi}_2\text{O}_3/\text{CuO}/\text{GO}$ nanocomposite synthesized via cost effective methods. *Sci Rep* 12, 14287 (2022).
10. Zahida batool; Mahreen Akhtar; Azhar Ul Hasnain; Saeed Buzdar; Aalia Nazir; Hafeez Ullah; Junaid Ishtiaq; Momina Rasheed, "Simple Synthesis of Bismuth Selenide Nanoparticles; Structural, Optical characterizations and their affective antibacterial Activity", *Applied Physics A*, Vol. 127, No.11 (2021).
11. Muhammad Amjad, Hafeez Ullah, Farah Andleeb, Zahida Batool, Alia Nazir, Ghulam Gilanie "Fourier-Transform Infrared Spectroscopy (FTIR) for Investigation of Human Carcinoma and Leukaemia", *Lasers in Engineering*, Vol. 51, No. 1-5, pp. 217-233 (2021).
12. Muhammad Waqas Akhtar Hafeez ullah, Zahida Batool, Saeed Ahmad Buzdar, A. N. (2021). Ultrasound Study of Carotid Arteries of Diabetic Patients. *Sylwan*, 165(4), 629–635.
13. Iftikhar Alam, Jalil Ur Rehman, S. Nazir, Aalia Nazeer, Muhammad Akram, Zahida Batool, Hafeez Ullah, Aslam Hameed, Altaf Hussain, Abid Hussain & M. Bilal Tahir (2021) Health risk assessment in different age-group due to nitrate, fluoride, nitrite and geo-chemical parameters in drinking water in Ahmadpur East, Punjab, Pakistan, *Human and Ecological Risk Assessment: An International Journal*, 27:7, 1747-1763, DOI: [10.1080/10807039.2021.1902264](https://doi.org/10.1080/10807039.2021.1902264)
14. Aslam Hameed, Saima Nazir, Jalil Ur Rehman, Nisar Ahmad, Altaf Hussain, Iftikhar Alam, Alia Nazir & M. Bilal Tahir (2021) Assessment of health hazards related to contaminations of fluorides, nitrates, and nitrites in drinking water of Vehari, Punjab, Pakistan, *Human and Ecological Risk Assessment: An International Journal*, 27:6, 1509-1522, DOI: [10.1080/10807039.2020.1858021](https://doi.org/10.1080/10807039.2020.1858021)
15. Ullah, H., Khan, A. R., Batool, Z., Nazir, A., & Khawar, R. (2021). Measurement of Glucose and Cholesterol Concentration in Blood Using an Ultraviolet (UV)/Visible Spectrophotometer in the Wavelength Range 190 to 1100 nm. *Lasers in Engineering (Old City Publishing)*, 49., 307-318.
16. Alam, I., ur Rehman, J., Ahmad, N., Nazir, A., Hameed, A., & Hussain, A. (2020). An overview on the concentration of radioactive elements and physiochemical analysis of soil and water in Iraq. *Reviews on Environmental Health*, 35(2), 147–155.
17. Malik, S., Ullah, H., Andleeb, F., Batool, Z., Nazir, A., Gilanie, G., Nisa, M., & Rashid, A. (2021). Enhancing Contrast in Optical Imaging of Cancer tissues and Study the Spectral Properties of Methylene Blue. *Acta Microscopica*, 30(2), 49–57.
18. Aziz, F., Bano, K., Siddique, A. H., Bajwa, S. Z., Nazir, A., Munawar, A., Shaheen, A., Saeed, M., Afzal, M., & Iqbal, M. Z. (2018). Lecithin-coated gold nanoflowers (GNFs) for CT scan imaging applications and biochemical parameters; in vitro and in vivo studies. *Artificial Cells, Nanomedicine, and Biotechnology*, 46(sup1), 314–323.
19. Mahmood, Q., Yaseen, M., Haq, B. U., Laref, A., & Nazir, A. (2019). The study of mechanical and thermoelectric behavior of MgXO_3 ($X = \text{Si, Ge, Sn}$) for energy applications by DFT. *Chemical Physics*, 524, 106–112.

20. Ashraf, S., Ullah, H., ABDEEB, F., Ikram, M., Nazir, A., & Batool, Z. (2020). Ultrashort Autocorrelatory Using a Femtosecond Laser for Quantification of Glucose and Salt Levels in Turbid Media. *Lasers in Engineering (Old City Publishing)*, 46.
21. Farooq Aziz, A. I., Nazir, A., Ahmad, I., Bajwa, S. Z., Rehman, A., Diallo, A., & Khan, W. S. (2017). Novel route synthesis of porous and solid gold nanoparticles for investigating their comparative performance as contrast computed tomography scan and effect on liver and kidney function. *International Journal of Nanomedicine*, 12,1555.
22. Bano, S., Nazir, S., Nazir, A., Munir, S., Mahmood, T., Afzal, M., Ansari, F. L., & Mazhar, K. (2016). Microwave-assisted green synthesis of superparamagnetic nanoparticles using fruit peel extracts: surface engineering, T2 relaxometry, and photodynamic treatment potential. *International Journal of Nanomedicine*, 11, 3833.
23. Gadhi, M. A., Azeem, N., Azeem, A., Fatmi, S., Nazir, A., & Buzdar, S. A. (2019). Quantitative measurements for entrance and exit radiation dose confirmation for cancer patients: An analysis of large cohort of patients. *International Journal of Radiation Research*, 17(3), 423–428.
24. Khan, M. I., Farwa, U., Iqbal, T., Ali, S., Nazir, A., & Ijaz, M. (2020). Comparison of 99mTc Injected Activity with Prescribed Activity in Four Types of Nuclear Medicine Exams. *Current Radiopharmaceuticals*, 13(1), 80–85.
25. Nazir, A., Afzal, M., Aleem, F., Bano, S., & Buzdar, S. A. (2014). MRI Dose Response of Ferrous Benzoic Xylenol Orange Gel. *Eur J Sci Res*, 120(1), 80–88.
26. Nazir, A., Afzal, M., & Buzdar, S. A. (2010). Effects of variation of MRI parameters on signal homogeneity: A qualitative analysis for ferrous benzoic xylenon orange gel. *J Pak Med Assoc*, 60(6), 470–473.
27. Aalia Nazir, M. W. A. and Z. B. (2017). Role of different pulse sequences for better contrast using magnetic resonance imaging. *International Journal of Advanced Research*, 5(2), 226–232.
28. Ullah, H., Andleeb, F., Malik, S., Asim, M., Nazir, A., & Batool, Z. (2020). Rapid and Non-Invasive Bio-Photonic Techniques for Morphological and Functional State Study of Lycopene in Tomato and Tomato Products. *Russian Agricultural Sciences*, 46(5), 459–467.
29. ULLAH, H., AKHTAR, M., NAZIR, A., BATOOL, Z., & MEHMOOD, R. (2021). Physiology and State of Blood Cells and Parameters Under Hyponatremia and Liquor Consumption Investigated at $\lambda=630$ nm. *Lasers in Engineering*, 48, 263–278.
30. Ullah, H., Andleeb, F., Batool, Z., & Nazir, A. (2020). Spectral Domain Optical Coherence Tomography (SD-OCT) for Salt Quantification in Blood. *Lasers in Engineering (Old City Publishing)*, 47.
31. Ullah, H., Shehzad, A., Batool, Z., & Nazir, A. (2020). Diffuse wave spectroscopy for optical properties measurements of normal and coagulated chicken liver using ultrafast femtosecond wavelength range (390-435 nm). *Journal of Optoelectronics and Advanced Materials*, 22(3–4), 121–128.
32. Rehman, J., Alam, I., Ahmad, N., Hameed, A., Nazir, A., Ullah, H., & Hussain, A. (2020). An overview on radiometric assessment and excess lifetime cancer risk of soil in Pakistan by using High Purity Germanium (HPGe) detector. *Reviews on Environmental Health*, 35(4), 531–543.
33. Ullah, H., A. Nazir, M. R., & Batool, Z. (2021). Identification of Liposarcoma from Biopsy of the Abdomen Using Microscopy with a Diode Laser Light Source at a Wavelength of 630 nm and an Ultraviolet (UV)/Visible Spectrophotometer in the Wavelength Range of 190 to 1100 nm. *Lasers in Engineering*, 50(4–6), 267–277.
34. H. Ullah, M. Faran, Z. Batool, A. Nazir, G. Gilanie, N. Amin, “Diagnosis of Ocular Diseases using Optical Coherence Tomography (@ $\lambda = 840$ nm) Database”, *Lasers in Engineering*. 53(1-2):73-85 June 2022.
35. H. Ullah, M. Zafar, Z. Batool, A. Nazir, G. Gilanie, J. Rehman, “Early detection of liver, ovary, breast and stomach tumors in visible ($\lambda=630$ nm) and infrared (10.5 - 5.5 μm) regime”, *Lasers in Engineering* (in press) 2021.
36. Saleem, S., Nazir, A., Atiq, M., Saleem, F., Batool, Z., Janjua, H. U., Atiq, A., & Kouser, R. December (2021). Evaluation of Dose Distribution Indices by using RapidArc Technique for the Treatment of Gynecological Cancer. *FRONTIERS IN CHEMICAL SCIENCES*, 2(2), 165-173. <https://doi.org/10.52700/fcs.v2i2.33>
37. Buzdar, S. A., Rao, M. A., & Nazir, A. (2009). An analysis of depth dose characteristics of photon in water. *Journal of Ayub Medical College Abbottabad*, 21(4), 41–45.
38. Buzdar, S. A., Khan, M. A., Nazir, A., Gadhi, M. A., Nizamani, A. H., & Saleem, H. (2013). Effect of change in orientation of enhanced dynamic wedges on radiotherapy treatment dose. *IJART*, 2, 496–500.
39. Buzdar, S. A., Shamsi, Q. A., Afzal, M., Nazir, A., Nizamani, A. H., & Gadhi, M. A. (2013). Verification of absorbed radiation dose for X-rays through Lagrange’s interpolation method. *Proceedings of the Pakistan Academy of Sciences*, 50(4), 309–314.
40. Buzdar, S. A., Afzal, M., Nazir, A., & Gadhi, M. A. (2013). Accuracy requirements in radiotherapy treatment planning. *J Coll Physicians Surg Pak*, 23(6), 418–423.
41. Bano, S., Waraich, M. M., Afzal, M., Nazir, A., Buzdar, S. A., & Manzur, S. (n.d.). *Implications of High b-value Diffusion Weighted MR Imaging in Brain Tumors using 1.5 T: Image Contrast and Correlation of Apparent Diffusion Coefficient with Tumor Grade*.
42. M Waqas Akhtar, A. N. and Z. B. (2017). Diagnosing the effect of femoral arterial blood flow upon popliteal arterial blood flow using ultrasound. *International Journal of Current Research*, 9(1), 45665–45668.
43. Aalia Nazir, M. Afzal. LINAC VS Cobalt-60; A Qualitative Comparison. *Journal of Pure and Applied Sciences* Vol.23(1), June 2004.

CONFERENCES/WORKSHOPS/MEETINGS (PRESENTATION, PARTICIPATION & ORGANIZED)

1. 11th International Istanbul Scientific Research Congress held on October 15-17, 2022.
2. 1st International Conference on Emerging Trends in Physics held in The Islamia University of Bahawalpur May 2022 (Organized).
3. 1st International Conference on Emerging Trends in Physics held in The Islamia University of Bahawalpur May 2022 (Oral Presentation).
4. Women in Physics 2020 held in The Islamia University of Bahawalpur (organized).
5. S20 Special Webinar on Women in Science 2020. King Fahad Medical City
6. Gender Equality in STEM 2019 by Schlumberger Foundation Faculty for the Future held in Islamabad.
7. 6th International Conference on Semiconductor materials and Nanodevices (15-17th February 2017) held in The Islamia University of Bahawalpur
8. 5th International Conference on Semiconductor materials and Nanodevices (15-17th February 2017) held in The Islamia University of Bahawalpur
9. SINAPSE Annual Scientific Meeting held on Friday 12th June 2015 at King's College Conference centre, University of Aberdeen, Scotland UK.
10. 3rd International Conference on Semiconductor materials and Nanodevices (22-24th April 2013) held in The Islamia University of Bahawalpur.
11. VASCAA-6, 6th Vacuum and surface sciences conference of Asia and Australia (9-13th October 2012) held in Islamabad.
12. 2nd International Conference on semiconductor materials and Nanodevices (10-12th October 2011) held in The Islamia University of Bahawalpur.
13. Pakistan Institute of Physics National Conference-2011 (March 28-30, 2011) held in Lahore.
14. Two days International Conference on Semiconductor Physics & Nanotechnology-2009 (June-2-4, 2008)
15. National workshop on crystal structure Determination using Powder XRD organized by Khwarizmi Science Society, 15-17 August, 2007.
16. Pakistan Institute of Physics International Conference-2006 (March 13-16, 2006) held in Lahore
17. 3rd International Oncology and Nuclear Medicine Conference & 1st International Conference on Pediatric Oncology (July 8-10, 2005) held in Karachi.

RESEARCH SUPERVISION

PhD:

1. **Farooq Aziz**, "Role of Nanoparticles as contrast Agent in Imaging and Treatment Techniques" Institute of Physics, The Islamia University of Bahawalpur. (February 2017).
2. **Waqas Akhtar**, "Diagnosing the effects of Diabetes Mellitus on the efficiency of brain and Knee using Doppler Ultrasound" Institute of Physics, The Islamia University of Bahawalpur. (August 2021).
3. **Iftikhar Alam** "Natural Radioactivity Concentrations and their Health Risk Assessment in Soil and Water using Gamma Rays Spectroscopy in Bahawalpur, Pakistan. Institute of Physics, The Islamia University of Bahawalpur. (August 2021).
4. **Saira Kiran** "Reliability of resistive switching material for RS mechanism in RRAM devices: DFT study" Thesis submitted.

M.PHIL:

1. Sadia Islam "Structural and Optical Properties of Sn doped CdS Nanowires". 2023
2. Anum Akbar, "Risk Free and Automated Approach of Brain Tumor Types Detection From MR Images Using Deep Learning Techniques". 2022
3. Mehreen Iqbal, "An Automated and Efficient Approach Of Normal and Hepatocellular Carcinoma Slices Classification From Liver CT Scan Using Machine Learning Techniques". 2022.
4. Noor ul Ain, "A Non-Invasive and Automated Method of Brain Disorders Detection From MR Images Using Deep Convolutional Neural Networks", 2022.
5. Khalida Bibi, "Synthesis, Characterization and Biomedical Applications of Polymer-Based Zinc Oxide/Cerium Oxide Nanocomposite", 2022

6. Aneeba Fatima, "Enhanced Photocatalytic and Antibacterial Activity of Green Synthesized Cadmium Oxide and Manganese Oxide Nanocomposite", 2022.
7. Maryam Zulfiqar, "Facile Synthesis and Characterization of Metal Oxide Nanocomposite for Application In Environmental Remediation", 2022.
8. Saba Amir, "Quality Enhancement for High Dose Rate Brachytherapy" 2021.
9. Maria Sarwar, "Efficacy of Radioactive Iodine in Thyroid Cancer Patients" 2021.
10. Maryam Iqbal, "Investigation of High Dose rate Brachytherapy for the treatment of cervical cancer", 2021.
11. Anam Arshad, "Feasibility of Implementation of CT in Brachytherapy Gel Dosimetry" (2020)
12. Sadaf Yasmeen, "A Comparative Analysis of Mammographic Breast Density Measurement With MRI" (2020).
13. Sanam Iftikhar, "Assessment of Breast Density Measurement For The Women at Higher Cancer Risk" 2020.
14. Atif Bilal, "Analysis of Different Abnormalities in Brain Tissues" 2020.
15. Khadija Aslam, "Three-Dimensional Visualization Of Brain Tissues By Using X-Ray Computed Tomography" 2019.
16. Neelam Rehman, "Evaluation of T1 and T2-Weighted Images of Soft Tissues Of MRI" 2019.
17. Zainab Shah, "A Comparative Analysis of CT and MRI For Brain Tumor" 2019.
18. Tooba Rafiq, "Development and Characterization of Gold Nanoparticles For Biomedical Applications" 2019.
19. Arifa Bano, "Synthesis and Characterization of Lipid Coated Nanoparticles For Biomedical Applications" 2019.
20. Amir Shahzad, "Analyzing Different Aspects of Lung Cancer by Using Computed Tomography" 2019.
21. M Ismail, "Role of MRI in Spinal Cord Injuries" 2019.
22. M Zeeshan Arshad, "Investigation of Brain Tumor by Using MRI" 2018.
23. M Irshad, "Investigation of Brain Hemorrhage by Using MRI" 2018.
24. Akhtar Rasool, "Investigation of Hepatocellular Carcinoma (HCC) by Computed Tomography" 2018.
25. Iftikhar Alam, "Assessment of Pancreatitis by Using Computed tomography" 2018.
26. M Hussain, "Diagnosis of kidney renal failure by using computed Tomography" 2018.
27. M Bilal, "Assessment of Bronchiectasis by Using CT scan" 2018.
28. Kalsoom Shahab, "MRI of Acquired Hydrocephalus" 2015.
29. Tanzila Shabbir, "Role of MRI in Congenital Hydrocephalus" 2015.
30. Shumaila Zareen, "Role of Magnetic Resonance Imaging in Brain Hemorrhage Stroke" 2015.
31. M Zahid, "Portal Vein Doppler in Cirrhosis of Liver" 2014.
32. Robina Naz, "Evaluation of Temporal Bone Fractures with 3D Computed Tomography" 2013.

BS & MSC PROJECTS:

75 Projects have been supervised at the undergraduate level.

