

Saman Iqbal

Assistant Professor

Department of Physics, University of the Punjab, Lahore

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EDUCATIONAL HISTORY

PhD (Physics)

Project: "Synthesis of Nanodiamonds for Nanocomposite Applications"

From University of Engineering & Technology, Lahore

MPhil (Applied Physics)

Project: X-ray induced effects on thin Polymeric Films"

From University of Engineering & Technology, Lahore

BSc (Hons) (Physics)

From University of the Punjab, Lahore

CAREER HISTORY

Oct 2019 – to date Assistant Professor (Physics) in University of the Punjab, Lahore.

May 2019- Oct 2019 Assistant Professor (Physics) in Government College Woman University, Faisalabad.

Nov 2011– May 2011 Teaching Assistant/Research Associate in University of Engineering & Technology, Lahore.

RESEACH INTEREST

Laser matter interaction and its application:

Nanoparticles synthesis by laser induced plasma

Pulsed laser deposition of thin film

Laser produced X-rays induced modification

Atmospheric Pressure Microplasma for Nanomaterials synthesis:

Design and development for microplasma facility

Metallic and bi-metallic Nanoparticles synthesis

Nanocomposite fabrication

Plasma systems

Thermal Plasma spray

Dielectric Barrier Discharge Plasma

Plasma Jets

Applications of Nanomaterials:

Antibacterial applications of nanocomposite

Water filtration

Biodegradable food Packaging

Additive Manufacturing:

Digital Light Processing

Fused Deposition Modelling

Selective laser sintering

Stereolithography

RESEARCH OUTPUT

Research Supervision: **01 PhD** (University of the Punjab, Lahore)

Research Co-Supervision: **04 MPhil** (Lahore Garrison University, Lahore)

01 MPhil (University of the Punjab, Lahore)

Chapters (Edited Books): **01**

Total International Publications: **14** (Research Paper)

Conferences & workshops: **09** (Oral presentation)

02 (Poster presentation)

04 (Organizer)

21 (Participation)

RELATED PUBLICATION

Saman Iqbal, Muhammad Shahid Rafique, Sultan Akhtar, Nida Iqbal, Aftab Ahmad Anjum, M.B. Malarvili, “Synergistic effect of Silver-Nanodiamond composite as an efficient antibacterial agent against E-coli and S-aureus”, *Heliyon*, 10(9), e30500, 2024 Impact Factor = **4.0**.

Muhammad Umair Tariq, Detlef Bahnemann, Faryal Idrees, **Saman Iqbal**, Fauzia Iqbal, Faheem K. Butt, Jeong Ryeol Choi, Muhammad Bilal, “Laser flash photolysis study of Nb₂O₅/g-C₃N₄ heterostructures as efficient photocatalyst for molecular H₂ evolution”, *Heliyon*, 9(6), e16772, 2023, Impact Factor = **4.0**.

Saman Iqbal, Muhammad Shahid Rafique, Sultan Akhtar, Nida Iqbal, Faryal Idrees, Arshad Mahmood, “Role of Hydrogen Flow Rate for the Growth of Quality Nanodiamonds via Microplasma Technique”, *Materials Innovations*, 2(8), 214-224, 2022 Impact Factor = **0.308**.

Nida Iqbal, **Saman Iqbal**, Tanveer Iqbal, H. R. Bakhsheshi-Rad, Ahmed Alsakkaf, Ahmad Kamil, Mohammed Rafiq Abdul Kadir, Mohd Hasbullah Idris, H. Balaji Raghav “Zinc-doped hydroxyapatite-zeolite/polycaprolactone composites coating on magnesium substrate for enhancing in-vitro corrosion and antibacterial performance”, *Transactions of Nonferrous Metals Society of China*, 30(1), 123-133, 2020 Impact Factor = **4.5**.

Rabia Ahmad, Muhammad Shahid Rafique, Ali Ajami, Shazia Bashir, Wolfgang Husinsky and **Saman Iqbal**, Influence of laser and material parameters on two photon absorption in Rhodamine B and Rhodamine 6G solutions in MeOH, *Optik - International Journal for Light and Electron Optics* 183, p. 835–841, 2019. Impact factor= **3.1**.

Rabia Ahmad, Muhammad Shahid Rafique, Ali Ajami, P. Nekvindova, B. Sevecova, **Saman Iqbal**, Femtosecond laser induced two photon absorption in Au embedded glasses, *Laser & Particle Beams*, 37, p. 61–66, 2019. Impact factor= **1.093**.

Saman Iqbal, Muhammad Shahid Rafique, Sultan Akhtar, Nida Liaqat, Nida Iqbal, Rabia Ahmad, “A comparative study on finding an effective root for the introduction of hydrogen into microplasma during diamond growth” *Physics and Chemistry of Solids*, 122, p. 72-86, 2018 Impact factor = **4.0**.

Saman Iqbal, Muhammad Shahid Rafique, Muhammad Zahid, Shazia Bashir, Muhammad Ashfaq Ahmad, Rabia Ahmad, “Impact of carrier gas flow rate on the synthesis of nanodiamonds via microplasma technique” *Material Science in Semiconductor Processing*, 74 p. 31-41, 2018, Impact factor= **4.1**.

Saman Iqbal, Muhammad Shahid Rafique, Nida Iqbal, Shazia Bashir, Shafaq Arif, Rabia Ahmad, “Impact of radiation induced crosslinking on structural, morphological, mechanical and optical properties of Polymethylmethacrylate thin films”, *Progress in Inorganic Coatings*, 111, p. 202-209, 2017, Impact factor= **6.6**.

Shafaq Arif, M. Shahid Rafique, Farhat Saleemi, Fabian Naab, Ovidiu Toader, Riffat Sagheer, Shazia Bashir, Rehana Zia, Khurram Siraj, **Saman Iqbal**, “Surface topographical and structural analysis of Ag⁺- implanted Polymethylmethacrylate”, *Nuclear Instruments and Methods in Physics Research B*, 381, p. 114-121, 2016, Impact factor = **1.279**.

Asma Hayat, Shazia Bashir, Muhammad Shahid Rafique, Mahreen Akram, Khalid Mahmood, **Saman Iqbal**, Asadullah Dawood, Arooj, “Spectroscopic and Morphological Study of Laser ablated Titanium”, *Optics and Spectroscopy*, 121(1), p. 1-9, 2016, Impact factor = **0.8913**.

Nida Iqbal, M. R. Abdul Kadir, **Saman Iqbal**, Saiful Izwan Abd Razak, M. Shahid Rafique, H.R. Bakhsheshi-Rad, Mohd. Hasbullah Idris, M. A. Khattak, H. R. B. Raghavendran, AA Abbas, “Nano-hydroxyapatite reinforced zeolite ZSM composites: A comprehensive study on the structural and in Vitro biological properties”, *Ceramics International*, 42, p. 7175-7182, 2016, Impact Factor = **5.2**.

Nida Iqbal, Mohammed Rafiq Abdul Kadir, Nasrul Humaimi Bin Mahmood, **Saman Iqbal**, D. Almasi, Farnaz Naghizadeh, R. Balaji, Tunku Kamarul, “Characterization and Biological Evaluation of Silver Containing Fluoroapatite Nanoparticles Prepared through Microwave Synthesis”, *Ceramics International*, 40, p. 16091-16097, 2014, Impact Factor = **5.2**.

Saman Iqbal, Muhammad Shahid Rafique, Safia Anjum, Asma Hayat, Nida Iqbal “Impact of X-ray irradiation on PMMA thin films”, *Applied Surface Science*, **259**, p. 853-860, 2012, Impact factor= **6.7**.

SYMPOSIUMS, WORKSHOPS AND CONFERENCES

ORAL PRESENTATIONS

Saman Iqbal, "Development of Polyvinyl Alcohol-Nanodiamonds Composite for antibacterial applications" 3rd International Conference on Physics Innovation in Material Science & Nanotechnology, 30-31 Jan 2023 (Lahore Garrison University, Lahore).

Saman Iqbal, "Synthesis and characterization of Polyvinyl Alcohol-Nanodiamonds Composite" 3rd National Symposium on Advancement in Physics, 28 June 2022 (Lahore Garrison University, Lahore).

Saman Iqbal, "Effect of hydrogen introduction root into microplasma on the quality of nanodiamond" Emerging trends in Physics, 23-25 Nov 2021 (Lahore College for Women University, Lahore).

Saman Iqbal, "Impact of hydrogen on synthesis of Nanodiamonds" 2nd International Physics Conference on Emerging Trends in Material Science & Technology, 05-06 Apr 2021 (Lahore Garrison University, Lahore).

Saman Iqbal, "Synthesis of stable Nanodiamond without hydrogen" 3rd International Conference on Advances in Theoretical and Applied Physics, 24-26 Feb 2021 (Government College Woman University, Faisalabad).

Saman Iqbal, "Development of Microplasma facility for synthesis of Nanodiamond" 2nd International Conference on Advances in Theoretical and Applied Physics, 02-03 Mar 2020 (Government College Woman University, Faisalabad).

Saman Iqbal, "Prospects and frontiers of nanodiamond clusters" 2nd Symposium on Advanced Materials, 28-29 Feb 2020 (Lahore Garrison University, Lahore).

Saman Iqbal, "Synthesis of Nanodiamonds using microplasma facility" International School on Physics & Allied Disciplines (ISPAD), 11-15 Mar 2019 (National Centre for Physics, Islamabad).

Saman Iqbal, Muhammad Shahid Rafique, Khurram Siraj, Safia Anjum, Shazia Bashir, Nida Iqbal, Rabia Ahmad, Shafaq Arif, "Optimal irradiation fluence of laser produced X-rays for crosslinking in PMMA thin films" International Conference on Solid State Physics (ICSSP'15), 13-17 Dec 2015 (Centre of Excellence in Solid State Physics, University of the Punjab, Lahore).

POSTER PRESENTATION

Saman Iqbal, Muhammad Shahid Rafique, "X-rays induced Effect on Thin polymeric films", International Scientific Spring (ISS-2016), 7-11 Mar 2016 (National Centre for Physics, Islamabad).

Saman Iqbal, "Formation of Nanodiamonds at near ambient condition via microplasma dissociation of ethanol vapor", One Day Symposium on Nanotechnology, 21 Apr 2015 (Department of Physics, University of Engineering & Technology, Lahore).

ORGANIZAR

First, "International Conference on 3D Printed and Energy Conversion Materials" 25-26 Jan 2024 (Department of Physics, University of the Punjab, Lahore).

First "International conference on Advances in Functional Materials" 20-22 Feb 2023 (Department of Physics, University of the Punjab, Lahore).

Two days hands on Training Workshop on " Web Development Training from Scratch", 1-2 Oct 2019 (Department of Physics, Government College Woman University, Faisalabad).

Two days International Workshop on " Fostering Scientific Research and Innovation in Pakistan", 1-2 Aug 2019 (Department of Physics, Government College Woman University, Faisalabad).

“The Pakistan Institute of Physics National Conference”, 28-30 Mar 2011 (Department of Physics, University of Engineering & Technology, Lahore).

RESEARCH PROJECTS

Solar-Light-Driven Simultaneous Hydrogen Generation and Water Purification by Synergetic Adsorption and Photocatalysis, Participant, (PSF-NSFC IV-43), 13.6 million (In Progress).

Synthesis of Nanostructures via microplasma facility (University of the Punjab, Lahore), Principal Investigator, 0.5 million.

Generation of Nanoparticles by Spark Discharge method (University of the Punjab, Lahore), Principal Investigator, 0.5 million (In Progress).

COURSES DEVELOPED AT M. PHIL/PHD

Applied Plasma Physics

Fundamental Laser Physics

Laser material processing

COURSES TAUGHT AT BS/ MPHIL/ PHD

Digital Electronics

Modern Physics

Nuclear Physics

Introduction to Chemistry

Analogue Electronics

Quantum Mechanics

Surface Analysis Techniques by Electron Emission

Solid State Physics

Physics Lab (Undergraduate and postgraduate)

TECHNICAL SKILLS/ EXPERIENCE

Strong command on Microsoft Office, X'pert High Score, Image J, WXRm, Mendeley, Endnote, Origin, C++, MATLAB, Linux.

Strong command on operating DLP, Electrospinning, Spin Coater, FTIR (Fourier transform infrared) Spectroscopy, UV-visible spectroscopy and Optical Microscope.

Data analysis of Scanning electron microscopy, Transmission electron microscopy, Laser Induced Breakdown Spectroscopy, X-ray diffraction, UV-visible spectroscopy, Photoluminescence spectroscopy, FTIR, Raman spectroscopy, Vickers Hardness Tester, thermogravimetric analysis, Differential Scanning Calorimetry Analysis, Universal testing machine analysis.

MEMBER ADVISORY BOARD

First, “International Conference on 3D Printed and Energy Conversion Materials” 25-26 Jan 2024 (Department of Physics, University of the Punjab, Lahore).

First “International Conference on Advances in Functional Materials” 20-22 Feb 2023 (Department of Physics, University of the Punjab, Lahore).

ADMINISTRATIVE SERVICES

Coordinator Timetable and workload

Member Co-curricular activities committees,

Member quality assurance cell,

Member quality enhancement cell

Incharge Advance Electronic LAB

Incharge Transparent Nanotechnology LAB

Incharge Electrode Fabrication and Additive Manufacturing Lab

ACHIEVEMENT

Second prize” Annual Poster Competition, 14 Apr 2015 (Department of Physics, University of the Punjab, Lahore.

REFERENCES

Prof. Dr. Muhammad Shahid Rafique
Dean Faculty of Natural Sciences, Humanities & Islamic Studies,
University of Engineering & Technology, Lahore.
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Prof. Dr. Mahmood-ul-Hassan
Chairman, Department of Physics,
University of the Punjab, Lahore
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