CURRICULUM VITAE

Name:	***SYED SALMAN HUSSAIN***
Date of birth:	26-03-1980.
Father's Name:	Syed Fayyaz Hussain
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Academic Qualification:

1	Ph.D. (Plasma Phys.)	Quaid-i-AzamUniversity	2007-2011	**Ph.D.**
2	M.Phil (Plasma Phys.)	Quaid-i-AzamUniversity	2006	First Division
3	M.Sc. (Physics)	Allama Iqbal Open University, Islamabad	2002	First Division
4	B.Sc. (Phy. Maths, Stats)	IslamabadCollege for Boys (ICB), Islamabad	1999	Second Division
5	F.Sc. (Pre- Engg)	IslamabadModelCollege for Boys, F-7/3, Islamabad	1997	First Division
6	SSC (Sc. Group)	FG Boys Secondary School No. 6, G-6/4, Islamabad	1995	First Division

Experimental skill: Plasma Focus, RF Plasma, DC Discharges, X-rays, Neutrons and charged particle measurements (time resolved and time integrated) material processing by plasma, XRD, SEM, EDS, Raman Spectroscopy, UV-vis-NIR spectrophotometer, Micro hardness, spectral studies of plasma, nanoparticles synthesis by plasma.

Distinctions:
a. An academic career culminating at Ph.D;
b. Won Higher Education Commission's scholarship for Ph.D. in Physics.

Present Position: Associate Professor Department of Physics IIUI

Publications: Twenty one publications in HEC recognized journals

Family Background: Family Background with outstanding academic contribution for the last five generations

Ph.D. Thesis title: ***Study of the driver energy pumped to the pinch and its influence on X-ray and neutron emission of the Plasma Focus device***

Hobbies: Reading, Electronics, Computers, Simulation and experimentation

Project Development:
1. Currently designing two projects regarding Nano particles generation and Solid waste management by plasma.
2. Two supervised project are already commercialized whereas workout for the next two is already completed.

Experience:
i. Class Room experience of teaching students of Junior Semesters throughout the academic career.
ii. Served as Lecturer in Physics at Islamabad College for Boys, (November 2002 to September 2004).
iii. Active researcher in experimental plasma physics 2005-2011.
iv. Assistant Professor Preston Institute of Nano Science and Technology (March2011 to May 2012)
v. Assistant Professor Department of Physics IIUI (May 2012)
vi Associate Professor Department of Physics IIUI

List of student projects supervised

Completed:

BS

1	Ammara Saeed	48-FBAS/BS-PHY/F10	Designing high voltage low current power supply for the generation of micro plasma
2	Rabbiya Muazzam	49-FBAS/BS-PHY/F10	Designing high voltage low current power supply for the generation of micro plasma
3	Nazakat Ali	72/FBAS/BS-PHY/S11	Designing a mechanism for the production of thin films
4	Usman Ishaq	76/FBAS/BS-PHY/S11	Designing a computer control for the spin coater
5	Matti ul Haq	82/FBAS/BS-PHY/S11	Designing a computer control for the spin coater
6	Irfan Majeed	84/FBAS/BS-PHY/S11	Designing a mechanism for the production of thin films
7	Muhammad Ikhlas Tariq	87/FBAS/BS-PHY/S11	Designing a mechanism for the production of thin films
8	M. Umair Hashmi	849-FBAS/BSPHY/F-15	Design a fabrication of computer interface for the measurement of time periods in various under graduate experiments
9	M. Akbar Shahid	868-FBAS/BSPHY/F-15	Design a fabrication of computer interfaced sextant for the measurement under graduate experiment
10	Mohsin Bin Waqar	870-FBAS/BSPHY/F-15	Design a fabrication of computer interfaced sextant for the measurement under graduate experiment
11	Ahsan Khan Niazi	871-FBAS/BSPHY/F-15	Design a fabrication of computer interfaced sextant for the measurement under graduate experiment
12	Mustahsan Khan	873-FBAS/BSPHY/F-15	Design a fabrication of computer interface for the measurement of time periods in various under graduate experiments
13	Siddique Shah	877-FBAS/BSPHY/F-15	Dosimetric evaluation of physical and virtual wedges for different photon beam energies
14	Malik Haseeb Awan	1803-FBAS/BSPHY/F19	Automatic Contactless Hand Wash System for Everyday Use
15	M. Dawar Khan	1812-FBAS/BSPHY/F19	Automatic Contactless Hand Wash System for Everyday Use
16	Sameer Khan	1755-FBAS/BSPHY/F19	Automatic Contactless Hand Wash System for Everyday Use
17	Muhammad Awais	1719-FBAS/BSPHY/F19	Integrated Web-Based Laser Security with Fire and Humidity Alert System
18	Ali Aslam	1789-FBAS/BSPHY/F19	Integrated Web-Based Laser Security with Fire and Humidity Alert System
19	M. Aitazaz Khan Niaz	1753-FBAS/BSPHY/F19	Integrated Web-Based Laser Security with Fire and Humidity Alert System
20	Faheem Abbas	1753-FBAS/BSPHY/F19	Automatic Water Dispenser Filling System
21	Azhar Nawaz	1459-FBAS/BSPHY/F18 Instruction manual for LCR meter	Instruction Manual for LCR meter
22	Imran Khan	1383-FBAS/BSPHY/F18 Instruction manual for LCR meter	Instruction Manual for LCR meter
23	Muhammad Usman	1451-FBAS/BSPHY/F18 Instruction manual for LCR meter	Instruction Manual for LCR meter
24	Muhammad Faisal	1443-FBAS/BSPHY/F18 Instruction manual for LCR meter	Instruction Manual for LCR meter

M.Sc.

25	Amir Sultan	171-FBAS/MSCPHY/S12	Design of electrode assembly for colloidal-solution formation by micro plasma
26	Muhammad Rehan Bhatti	195-FBAS/MSCPHY/S12	Design of electrode assembly for colloidal-solution formation by micro plasma
27	Usama Sadiq	758-FBAS/MSCPHY/F-17	Automation of Irrigation Control System (AICS)
28	Farhan Javed	762-FBAS/MSCPHY/F-17	Automation of Irrigation Control System (AICS)
29	Umer Saleem	783-FBAS/MSCPHY/F-17	Automation of Irrigation Control System (AICS)
30	Ramzan Hussain	756-FBAS/MSCPHY/F-17	Automatic and Wireless Water Pump Control System Using RF Communication
31	Hassan Afzal	772-FBAS/MSCPHY/F-17	Automatic and Wireless Water Pump Control System Using RF Communication
32	Muhammad Shahzaib Gondal	777-FBAS/MSCPHY/F-17	Automatic and Wireless Water Pump Control System Using RF Communication
33	Syed Ahsan Akmal	1020-FBAS/MSCPHY/F19	Low voltage high current power supply
34	Atif Zahoor	1032-FBAS/MSCPHY/F19	Low voltage high current power supply

M.S.

35	Nauman Safdar	103/FBAS/MS-PHY/F-11	Synthesis and physical characteristics of Cu doped ZnO nanostructures
36	Muhammad Zubair	108/FBAS/MS-PHY/F12	Effect of electrode assembly on colloidal solution formation by micro plasma
37	Muhammad Mushtaq	113/FBAS/MS-PHY/F12	Synthesis and characterization of nickel oxide (NiO) nanoparticles.
38	Muhammad Siddique Akbar	147-FBAS/MS-PHY/S13	Study of improved optical properties of GaAsN
39	M. Rehan Bhatti	294-FBAS/MSPHY/F-14	Plasma assisted growth of magnetic nanoparticles
40	Sajjad Ahmad Khan	306-FBAS/MSPHY/F-14	Effect of thermal annealing on structural optical and electrical properties of SiO_2-TiO_2 Nano Composites Thin Films Deposited by Pulsed Laser Deposition
41	Kamil Zubair	311-FBAS/MSPHY/F-14	Design and optimization of Zinc Oxide based photo detector
42	Waqas Shoukat	280-FBAS/MSPHY/F-14	Synthesis and Characterization of $NiFe_2O_4$ nanoparticles by wet chemical solgel method

43	Muhammad Jawad Latif	226-FBAS/MSPHY/F13	Study of Colloidal Silver formation by micro plasma in flow mode
44	Kashif Mehmood	280-FBAS/MSPHY/F14	6MV Treatment Beam-Matching for Tow different Linear Accelerators in Radiation Therapy
45	Muhammad Bashir	408-FBAS/MSPHY/S16	Numerical Simulation for the Pinch Energy of Deuterium Operated Plasma Focus Device
46	Amir Mansoor	276-FBAS/MSPHY/S14	Effect of Pinch Effect on the Running Parameters of the Plasma Focus Device
47	Asim Javed	435-FBAS/MSPHY/F16	Structural and Bandgap Studies of TiO_2 Nanoparticles Treated by Argon and Helium plasma
48	Anwar Ahmad Khan	437-FBAS/MSPHY/F16	Structural, Optical and Dielectric Studies of Cu_2O Nanostructures Synthesized by Plasma
49	Abdul Sattar Khan	459-FBAS/MSPHY/F16	Effect of Variation of Microplasma Parameters on Structural and Optical Properties of NiO Nanoparticles Synthesized by Plasma
50	Muhammad Atif Khan	466-FBAS/MSPHY/F16	Plasma Current and Treatment Time Induced Effects on Structural and Dielectric Properties of TiO_2 Nanoparticles
51	Muhammad Nauman Khalid	469-FBAS/MSPHY/F16	Effect of Gas Flow Rate and Electrolytic Molarity on Structural and Dielectric Properties of Iron Oxide Nanoparticles Synthesized by Micro-Plasma
52	Bilal Irfan	673-FBAS/MSPHY/F22	Design Optimization of Atmospheric Pressure Plasma System for Surface Treatment by COMSOL Multiphysics

Ph.D.

53.	Muhammad Bilal Khalid	56-FBAS/PHDPHY/F15	Role of Plasma Irradiation in Surface Treatment of Metal Based Materials

Collaborations

1. Department of Physics, Quaid-i-Azam University
2. Department of Physics, COMSATS Institute Of Information Technology
3. Department of Bio-Sciences COMSATS Institute Of Information Technology
4. Department of Physics, University of Gujrat
5. Department of Physics, Allama Iqbal Open University, Islamabad
6. Department of Physics, Baluchistan University of Information Technology, Engineering and Management Sciences, Quetta

Honorary Reviewer

Honorary reviewer of 7 ISI index journals

Development

1. Designing and construction of high voltage low current power supply for the generation of micro plasma (10kV 100mA)
2. Design and construction of electrode assembly for colloidal-solution formation by micro plasma
3. Design and construction of steady flow system for the liquid in colloidal solution formation
4. Design and construction of electrode assembly for colloidal-solution formation by electrochemical process
5. Design and construction of low cost high speed spin coater
6. Design and construction of separate computer controlled module for the spin coater
7. Design a fabrication of computer interface for the measurement of time periods in various under graduate experiments
8. Design a fabrication of computer interfaced sextant for the measurement under graduate experiment
9. Establishment of Plasma Physics Laboratory (In Progress)
10. Establishment of Departmental workshop (In Progress)

Research work commercialized

1. Designing high voltage low current power supply for the generation of micro plasma (02 units supplied)
2. Design and construction of steady flow system for the liquid in colloidal solution formation (1st unit supply under way)
3. Design a fabrication of computer interfaced sextant for the measurement under graduate experiment (Pre-Order received)

Departmental Responsibilities

1. Incharge Academic Affair to the Faculty of Sciences(2022-2025)
2. Incharge Academic Affair to the Department of Physics
3. Focal person of the Department (2013-2016)
4. Focal person QEC Teacher evaluation (2014-to date)
5. Coordinator Admission Committee BS, M.Sc., MS, Ph.D. (2013- to date)
6. Incharge Examination committee (2013- to date)
7. Incharge Computer Laboratory (2013- 2019)
8. Incharge Electronics Laboratory (2013-to date)
9. Incharge Nano Science and Nano Technology Research Laboratory (2016- to date)
10. Incharge Timetable/datesheet (2015-to date)
11. Incharge Self Assessment Report Program Team (2013 - to date)
12. Incharge MSc/MS, Ph.D. Thesis plagiarism test (2012-to date)
13. Member Technical committee for undergraduate laboratories
14. Student Affairs committee (2016-to date)
15. Under graduate Labs monitoring committee (2016-to date)
16. Class Monitoring committee (2016-to date)
17. Ph.D. Students Comprehensive Examination Committee (2013-to date)
18. Course exemption committee (2014- to date)
19. Hifz test (BS, M.Sc, MS and Ph.D) (2013-to date)
20. Arrangements of MS/Ph.D Synopsis presentation. (2013-2017)
21. Admission eligibility committee (special cases) (2013-to date)
22. Working on establishment of mechanical workshop for department.
23. Working on establishment of Plasma Physics Laboratory
24. Books Selection for Library (2013-2017)
25. Member/ Secretary Recruitment Committee for HEC Project

References

1. Prof. Dr. G. Murtaza
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List of Publications

1. Enhanced and reproducible neutron emission from a plasma focus with pre-ionization induced by depleteduranium (U^{238}), S Ahmad, **S S Hussain**, Mehboob Sadiq, M Shafiq, A Waheed and M Zakaullah, Plasma Phys. Control. Fusion **48** (2006) 745–755 (Impact factor 2009 2.409) https://doi.org/10.1088/0741-3335/48/6/003

2. The correlation of x-ray emission with pinch energy in a 1.5 kJ plasma focus, **S S Hussain**, S Ahmad, S Leeand M Zakaullah, Plasma Sources Sci. Technol. **16** (2007) 587–592 (Impact factor 2009 2.384) https://doi.org/10.1088/0963-0252/16/3/018

3. Effect of anode shape on correlation of neutron emission with Pinch Energy for a 2.7 kJ Mather-type plasma focus device, **S. S. Hussain**, S. Ahmad, G. Murtaza, and M. Zakaullah J. Appl. Phys. **106**, 023311 (2009) (Impact factor 2009 2.072) https://doi.org/10.1063/1.3177253

4. Plasma focus assisted carburizing of Aluminum, Ghulam Murtaza, **S. S. Hussain**, Mehboob Sadiq and M. Zakaullah, Thin Solid Films Volume 517, Issue 24, 30 October 2009, Pages 6777-6783 (Impact factor 2009 1.727) https://doi.org/10.1016/j.tsf.2009.05.065

5. Soft X-ray emission from preionized He Plasma in a 3.3 kJ Mather type plasma focus device, H.U. Khan, M. Shafiq, **S. S. Hussain**, S. Ahmad and M. Zakaullah Plasma Devices and Operations, Volume 17, Issue 4December 2009 , pages 257 – 264 (Impact factor 2009 0.3) https://doi.org/10.1080/10519990903151541

6. Enhancing soft x-ray emission with depleted uranium in neon plasma focus, H.U. Khan, M. Shafiq, **S. S. Hussain**, S. Ahmad and M. Zakaullah Eur. Phys. J. Appl. Phys. **48**, 21001 (2009) (Impact factor 2009 0.756) https://doi.org/10.1051/epjap/2009136

7. Effect of Preionization on soft X-ray emission and plasma dynamics in a small plasma focus system, H.U.Khan, M.Shafiq, **S. S. Hussain** and M. Zakaullah, Journal of Applied Physics, 107(2010) 073301 (Impact factor 2009 2.072) https://doi.org/10.1063/1.3369336

8. Carburizing of zirconium using a low energy Mather type plasma focus, Ghulam Murtaza, **S. S. Hussain**, N. U. Rehman, S. Naseer, M. Shafiq and M. Zakaullah Surface and Coatings Technology Volume 205, Issues 8-9, 25 January 2011, Pages 3012-3019 (Impact factor 2009 1.793) https://doi.org/10.1016/j.surfcoat.2010.11.015

9. Trace-Rare-Gas Optical Emission Spectroscopy of Nitrogen Plasma Generated at a Frequency of 13.56 MHz, N. U. Rehman, F. U. Khan, S. Naseer, G. Murtaza, **S. S. Hussain**, M. Khan, M. Zakaullah Plasma Sci. Technol. **13,** 2011, 208-212(Impact Factor 0.596) https://doi.org/10.1088/1009-0630/13/2/16

10. Nanotechnology research among some leading OIC member states, R. S. Bajwa, K. Yaldram, **S. S. Hussain**, T. Ahmed, Journal of Nanoparticle Research, August 2012, 14:1060(Impact Factor: 2.278). https://doi.org/10.1007/s11051-012-1060-9

11. Facile Synthesis as well as Structural, Raman, Dielectric and Antibacterial Characteristics of Cu Doped ZnO Nanoparticles, Javed Iqbal, Nauman Safdar, Tariq Jan, Muhammad Ismail, **S.S. Hussain**, Arshad Mahmood, Shaheen Shahzad, Qaisar Mansoor, Journal of Materials Science & Technology 31 (2015) 300-304 (Impact Factor: 1.61) https://doi.org/10.1016/j.jmst.2014.06.013

12. Effect of air annealing on structural and magnetic properties of Ni/NiO nanoparticles K. Nadeem, AsmatUllah, M. Mushtaq, M. Kamran, **S.S. Hussain**, M. Mumtaz, , Journal of

Magnetism and Magnetic Materials, Volume 417, 1 November 2016, Pages 6-10, (Impact Factor 3.046) https://doi.org/10.1016/j.jmmm.2016.05.064

13. Characterization of RF He-N_2/Ar mixture plasma via Langmuir probe and optical emission spectroscopy techniques, Maria Younus, N. U. Rehman, M. Shafiq, **S. S. Hussain**, M. Zakaullah and M. Zaka-ul-Islam PHYSICS OF PLASMAS 23, 083521 (2016) https://doi.org/10.1063/1.4960999

14. Role of surface spins on magnetization of Cr2O3 coated γ-Fe2O3 nanoparticles K Nadeem, , M. Kamran, A. Javed, F. Zeb, **S. S. Hussain**, M. Mumtaz, H. Krenn, D. V. Szabo, U. Brossmann, and Xiaoke Mu. Solid State Sciences **83** (2018): 43-48 https://doi.org/10.1016/j.solidstatesciences.2018.07.006

15. Stable current sheath dynamics caused by preionization source in a small plasma focus device using He as an operating gas H.U. Khan, **S. S. Hussain**, M. Ikram, M. Zafar Ilyas, M. Zubair khan Niazi & M. Shafiq (2019) (Received 23 Apr 2018, Accepted 22 Dec 2018), Radiation Effects and Defects in Solids, https://doi.org/10.1080/10420150.2018.1563896

16. Magnetic and dielectric properties of $NiCr_xFe_{2-x}O_4$ nanoparticles M. Kamran, , W. Shoukat, K. Nadeem, **S. S. Hussain**, F. Zeb & S. Hussain, (2019).. *Materials Research Express*, *6*(7), 076106. https://doi.org/10.1088/2053-1591/ab13f0

17. Polytropic Coefficient Function for Tonks-Langmuir-Type Bounded Plasmas with Kappa-Distributed Electrons and Cold Ion Source. M. Khan, S. S. Hussain, Z. Sheng & M. Kamran, (2019). *Brazilian Journal of Physics*, 1-7. https://doi.org/10.1007/s13538-019-00659-4

18. Gamma irradiation-induced phase transitions of boron nitride nanoparticles Hamdullah Khan, , Ishaq Ahmad, Ting-Kai Zhao, Farhana Sparis, S. S. Hussain, Abdoulaye Diallo, Javed Iqbal et al. *Materials Research Express* 6, no. 11 (2019): 1150b2.

19. Khalid M.B, Hussain S.S, Shafiq, M., Mondragón, J. J., Mehmood, S., & Asghar, M. (2024). Effect of Substrate Temperature on the Surface of the Cathodic Cage Plasma Nitrided Aisi 430 Ferritic Stainless Steel. Iran. J. Chem. Chem. Eng.(IJCCE) Research Article Vol, 43(11).

20. Khalid, M. B., Hussain, S. S., Farooq, A., Shafiq, M., Khan, Y., & Shoaib, M. (2025). Effect of temperature control on tribological and corrosion properties of copper in cathodic cage plasma nitriding. AIP Advances, 15(1) 015227. doi: 10.1063/5.0251582

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