

Dr. SYED SAJJAD HUSSAIN

Assistant Professor

CENTRE OF EXCELLENCE IN SOLID STATE PHYSICS,

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PERSONAL INFORMATION

Citizenship : Pakistan
 Date of Birth : 28th September 1978
 Birth Place : Sialkot, Pakistan

ACADEMIC QUALIFICATIONS

Doctor Degree : **Université Henri Poincaré, Nancy** (2007– 2010)

(Ph.D) France Field: Solid state physics

Thesis title: Elaboration, characterization structural and luminescence of Er doped AlN thin film deposition obtained by PVD magnetron RF

Specializations: Thin film deposition by magnetron sputtering, Photoluminescence, III-V Semiconductors, Aluminum Nitride, Erbium doping, Nano materials.

Applications: Optoelectronics, temperature – insensitive laser diodes and optical amplifiers.

Supervisor : Professor Dr. Philippe Pigeat (Research Director of Centre National de la Recherche Scientifique, CNRS Nancy France)

MS : **Université Joseph Fourier Grenoble** (2006– 2007)

Field: Physics

France Thesis title: Etching indium phosphide (InP) using Inductive Coupled Plasma (ICP), and reactive Ion etching (RIE)

Specializations: Plasma technology and applications, Optimization of dry etching of InP by using RIE and ICP.

Applications: Photonic crystals, MEMS, LASERS

Supervisor: Jean-Louis Leclercq (Research Director of Centre National de la Recherche Scientifique, CNRS - Institute of Nanotechnologies de Lyon, INL Site Ecole Centrale de Lyon, France)

M. Sc Degree : University Of The Punjab, Lahore (1999– 2001)

Pakistan Field: Physics

Thesis title: Dielectric Properties of Industrial polymer Composite Materials

Supervisor: Prof. Dr. Tasneem Zohra Rizvi, PCSIR, Lahore

Grade: First Division

Bachelor Degree : University Of The Punjab, Lahore (1997-1999)

Pakistan Field: Mathematics and Physics

Grade: First Division

ACADEMIC EXPERIENCES

Assistant Professor (Physics): Oct 2010 - Present

Centre of Excellence in Solid State Physics, University of the Punjab, Lahore Pakistan

Subjects taught (Post-graduates, M.Phil) :

- *Application of Nanostructures Experimental Characterization Techniques, Semiconductor Physics,*
- Lab work (Post-graduates, M.Phil):
 - *Optical Lithography Lab*
 - *Thin film Fabrication Lab*

RESEARCH EXPERIENCE

Research Supervision:

Higher education commission APPROVED PhD Supervisor Since 2012.

<http://sc.hec.gov.pk/aphds/submit.asp?supid=5604>

Research Supervision (M.Phil Research):

Sr. No	Student Name	Title of Thesis	Year
1.	Hafiza Iqra Elahi	Synthesis and characterization of AlN Thin Films By Sol-Gel Method	2016
2.	Gulshan Ayub	Optical and Dielectric Properties of Aluminum Nitride Thin Films prepared by Sol-Gel route	2016
3.	Nadia Anwar	Preparation and Characterization of sputtered thin film for optical filters	2017
4.	Muhammad Moazam	Optical Properties of ZnS:Fe thin films	2017
5.	Aqeel Abbas	Electrical Properties of ZnS:Fe thin films	2018

ORGANIZING INTERNATIONAL CONFERENCE

Member of organizing committee:

1. **International Conference on Solid State Physics (ICSSP'13)** was held during 02 – 06 December, 2013 at **Centre of Excellence in Solid State Physics**, University of the Punjab, Lahore, Pakistan. <http://www.icssp13.org.pk/>
<http://www.icssp13.org.pk/index.php/committeess/organizingcommitteemembers>
2. **International Conference on Solid State Physics (ICSSP'15)** was held during 13 – 17 December, 2015 at **Centre of Excellence in Solid State Physics**, University of the Punjab, Lahore, Pakistan. <http://www.icssp15.org.pk/index.php/committees.html>
3. **International Conference on Solid State Physics (ICSSP'17)** was held during 10 – 14 December, 2017 at **Centre of Excellence in Solid State Physics**, University of the Punjab, Lahore, Pakistan. <http://www.icssp15.org.pk/index.php/committees.html>

INTERNATIONAL TRAINING AND STUDY VISIT

- **29th June 2006 - 28th Sept 2010, Study Visit for MS Leading to PhD on Higher Education Commission of Pakistan Scholarship, (MS)-Université Joseph Fourier Grenoble 1, Grenoble France, and (PhD)-Université Henri Poincaré Nancy 1, Nancy, FRANCE**
- **Winter College on Optics: Optical Frequency Combs,**

(15-26 February 2016) the Abdus Salam, International Centre for Theoretical Physics, ICTP, Trieste - ITALY

RESEARCH EXPERIENCES

- **Research Project - Center of Excellence in Solid State Physics, Lahore**
Grant: Award of Startup Research Grant to the Assistant Professor Serving Under IPFP (0.5 M Rs)
Title: “Study and Fabrication of AlN Thin Film by CVD, Application in the UV, Visible and Near IR Photoluminescence Photonic Devices.”
Awarding Authority: Higher Education Commission of Pakistan, Sector H-9, Islamabad, Pakistan
- **Research Internship - Institute of Nanotechnology, Lyon France**
Laboratory: Institute of Nanotechnologies de Lyon INL, UMR CNRS 5270, 69134 Ecully Cedex. Ecole Central de Lyon, FRANCE.
Duration: Feb 2007 - Oct 2007.
- **Research Internship - PCSIR, Lahore Pakistan.**
Supervisor: T. Zohara Rizvi
Duration: Jan 2000 - Dec 2001.

WORKSHOP

- **One day workshop on Lasers and Nanotechnology, Department of Physics, UET, June 14, 2012, Lahore, Pakistan.**
- **International School on New Trends in Quantum Information Theory, Department of Physics, Syed Babar Ali School of Science and Engineering, LUMS, Sept 12-13, 2014, Lahore, Pakistan.**
- **36th and 37th, International Nathiagali Summer College (INSC) on Physics and Contemporary Needs. July 2011 and 2012, Nathiagali, Pakistan.**
- **Winter College on Optics: Optical Frequency Combs (15-26 February 2016) the Abdus Salam, International Centre for Theoretical Physics, ICTP, Trieste – ITALY**
- **2 Days Workshop on: “Patent Filing & Introduction to Intellectual Property System of Pakistan”, 17-18 May 2017.** Organized by ORIC, Khorana Hall, Institute of Chemistry, University of the Punjab, Lahore, Pakistan.

SEMINARS

- Oral Presentation: on “Elaboration, Characterization Structural and Luminescence of Er Doped AlN Thin Film Deposition Obtained by PVD Magnetron RF”, **S. S. Hussain**, 15th February 2011, Center of Excellence in Solid State Physics University of the Punjab **Lahore Pakistan.**

PROFESSIONAL MEMBERSHIP

- (Jan 2011- current) **Member of Pakistan Institute of Physics, PIP** in collaboration with Department of Physics, University of Engineering & Technology, Lahore Pakistan. (ID No. *PIPC-11-06*)

8

AWARDS

- **Silver Medal**, Master Computer Science, University of South Asia (USA), 2001.
- **First Winner** in Best Innovative Research Proposal, Doctoriales de Lorraine, Ventron, France, May 17-21, 2010.
- **3rd Winner** in Poster Presentation, Doctoriales de Lorraine, Ventron, France, May 17-21, 2010.

ADDITIONAL SKILLS AND STRENGTH

- **Experimental Expertise:**
 - Fabrication of Thin Films (Nanostructures) using, PVD (Physical Vapor deposition) Magnetron sputtering (RF), Edwards 306 Vacuum Coater.
 - Experience with semiconductor thin film characterization using SEM, TEM, Ellipsometry.
 - Photoluminescence Setup, Measurement in Near Infra-red and Visible range. Time resolved Photoluminescence measurements room temperature, 77K, 4 K.
 - Photolithography, MJB4 Mask aligner, RIE (Reactive ion etching), ICP (Inductive coupled Plasma) Etching, PE-100 Plasma etching system at CSSP.
 - Liquid N₂ Cryostat for low temperature (77K) measurements especially for superconductor samples at CENTRE OF EXCELLENCE IN SOLID STATE PHYSICS.
 - 4 years Clean room experience in France CNRS (Nancy), INT Lyon and 4 years at CENTRE OF EXCELLENCE IN SOLID STATE PHYSICS.
- **Fields of Expertise:**
 - Thin Films deposition and Characterization
 - Magnetron Sputtering (RF)
 - Nanomaterial, Applications of Nanostructures in optoelectronic, Spintronic devices.
 - Photoluminescence, Optical Properties, opto-electronics devices, Solar Cells.

REFEREES

Prof. Dr. Shahzad Naseem

MSc,PhD,MInstP,FInstPP,MAVS

Director

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Prof. Dr. Philippe Pigeat

Chercheur

Institut Jean Lamour,

Département CP2S- Chimie et Physiques Solides et des Surfaces,

EFCM : Elaboration et fonctionnalité de couches minces, UMR CNRS7198, Université

Henri Poincaré, Faculté des Sciences et Techniques, Bd des Aiguillettes, BP 239, 54506

Vandoeuvre-les-Nancy Cedex **France**.

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Prof. Dr. M. Khaleeq-ur-Rahman (Ex-Vice Chancellor GCU)

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