



DR TAHIR IQBAL

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Postal Address

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Permanent address: House No.1177, Street No.02, Block C (NPF), Sector O-9, Islamabad, Pakistan.

OBJECTIVE

Seeking a challenging position within an organization offering excellent prospects for career growth and personal development which can be beneficial to mankind.

Research interest: Nano-photonics and plasmonics, Nano-fabrication and nano -characterization near-field optics, scanning probe microscopy, and optical properties of metallic nanostructures.

PERSONAL PROFILE

Father's Name : Amir Alam
 Date of Birth : April 1st, 1979.
 N.I.C. # : 37102-1242156-1
 Religion : Islam
 Nationality : Pakistani
 Passport # : CJ1331562
 Marital Status : Married
 Domicile : Attock (Punjab)

Present Status

❖ Working as

❖ **Head, Department of Physics, University of Gujrat** (Notification no. UOG/R(E-II)/PHY/07-23/45083 dated 07-10-2015 from Registrar Office).

❖ **HEC Approved PhD Supervisor** (Ref no. 1-98/HEC/PHY/2014/168(35) dated January 14, 2015).

ACADEMIC QUALIFICATION

Class	Subject	Year	Marks/GPA	Board/University
PhD	Physics (Nanotechnology)	2013	---	Queen's University, Belfast UNITED KINGDOM.
M.Sc	Plasma Physics	2009-2010	(Distinction)	Queen's University, Belfast UNITED KINGDOM.
M.Phil	Physics	2006	3.8	QAU Islamabad, Pakistan

TOTAL EXPERIENCE : TEACHING /RESEARCH

15 YEARS & 11M(July 2017)

POST PHD EXPERIENCE : TEACHING /RESEARCH

3YEARS & 10 M(July 2017)

S#	NAME OF INSTITUTION	DURATION
1.	UNIVERSITY OF GUJRAT, GUJRAT, PAKISTAN	❖ 25 th September 2013 to date.

PRE- PHD EXPERIENCE: POSTGRADUATE TEACHING /RESEARCH**10Y & 2.3M** (excluding *)

S#	NAME OF INSTITUTION	DURATION
2.	QUEEN'S UNIVERSITY BELFAST, UK	❖ September 2010 to September 2013 ❖ Equivalent to 3 years as per HEC notification no. 2-3/HEC/AD(QA)/2007/29, dated June 23, 2007.
3.	QUEEN'S UNIVERSITY BELFAST, UK	❖ October 2010 to September 2013* ❖ Teaching/Lab demonstrator
4.	QUEEN'S UNIVERSITY BELFAST, UK	❖ November 2009 to September 2010 ❖ Equivalent to 1 years as per HEC notification no. 2-3/HEC/AD(QA)/2007/29, dated June 23, 2007.
5.	UNIVERSITY OF GUJRAT, GUJRAT	❖ 1 st August 2007 to 10 th November 2009
6.	QUAID-I-AZAM UNIVERSITY, ISLAMABAD	❖ Feb.2004- Feb.2006 ❖ Equivalent to 2 years as per HEC notification no. 2-3/HEC/AD(QA)/2007/29, dated June 23, 2007.
7.	INFONEXUS COLLEGE OF INFORMATION TECHNOLOGY, (RAWALPINDI GROUP OF COLLEGES), RAWALPINDI	❖ February 2003 to January 2004 ❖ Feb 2004 to April 2004*
8.	PAKISTAN INSTITUTE OF NUCLEAR SCIENCES & TECHNOLOGY (PINSTECH), ISLAMABAD	❖ One year Research Experience (Jan 2002- Dec 2002) in Nuclear Physics Division (NPD).

the experience duplicating with serial no.2 & 6.*UNDERGRADUATE TEACHING EXPERIENCE****05M**(excluding *)

S.N	NAME OF INSTITUTION	DURATION
9.	GOVT. GORDON COLLEGE RAWALPINDI	❖ 15 th November 2005 to Feb 2006* ❖ March 2006 to 31 st July 2007
10.	GOVT. INTER COLLEGE KALLAR SYEDAN, RAWALPINDI.	❖ 23 rd April 2005 to 14 th November 2005*

the experience duplicating with serial no.6.*SCHOOL TEACHING EXPERIENCE****01 Y & 06M**

NAME OF INSTITUTION	DURATION
GRAMMAR PUBLIC SECONDARY SCHOOL RAWALPINDI.	❖ May 1999 to October 2000.

ADMINISTRATIVE EXPERIENCE**05 Y & 01M***(Sept. 2016)

NAME OF INSTITUTION	DURATION
DEPARTMENT OF PHYSICS, UNIVERSITY OF GUJRAT, GUJRAT	❖ 1 st October 2015 to date* ❖ As HOD
DEPARTMENT OF PHYSICS, UNIVERSITY OF GUJRAT, GUJRAT	❖ 3 rd October 2007 to 28 th October 2008* ❖ As HOD/Coordinator
HOSTEL, UNIVERSITY OF GUJRAT, GUJRAT	❖ 21 st September 2007 to January 2009*
HOSTEL, GOVT. GORDON COLLEGE RAWALPINDI	❖ 15 th November 2005 to 31 st July 2007*

**the experience duplicating with serial no.1, 5 & 9.*

BOOK PUBLICATIONS = 04

1. M. B. Amin and T. Iqbal (2016) '**Mechanics**' Ilmi kitab Khana Urdu Bazar Lahore, **PAKISTAN**
2. T. Iqbal and M. B. Amin (2016) '**Ilmi BS practical notebook**' Ilmi kitab Khana Urdu Bazar Lahore, **PAKISTAN**
3. **T. Iqbal, (2015), 'Controlling of Electron Plasma by Metal Nano Structuring' LAP LAMBERT Academic Publishing (ISBN-13:978-3-659-75666-5, ISBN-10:3659756660, EAN:9783659756665), GERMANY.**
4. **T. Iqbal, (2011), "Deposition and Characterization of Carbon film", Publisher VDM Verlag Dr. Müller, (ISBN 978-3-639-34872-9), GERMANY.**

RESEARCH PAPER PUBLICATIONS -25 (IF=36.883)

Year 2009

1. "Characterization of Carbon film by Raman spectroscopy", Radiation effects and defects in solids (Taylor & Francis), **2009**; ***T. Iqbal**, M. Sajjad, M. Imran, M. Sadiq and M. Zakaullah, Vol.164 (03), 153-161. (**Impact factor; 0.55**)
2. "Absolute efficiency calibration of High Purity Germanium (HPGe) detector in the range 120 keV to 8500 keV" Radiation effects and defects in solids (Taylor & Francis), **2009**; ***T. Iqbal**, M. U.Rajput, M. Sultan, and M.sajjad. Vol. 164 (11), 699-711. (**Impact factor; 0.55**)

Year 2015

3. 'Non-universal behavior of leaky surface waves in a 1D asymmetric plasmonic grating'. Journal of Applied Physics (AIP Publishing), **2015**; ⁺S. Vempati*, ⁺**T. Iqbal***, and S. Afsheen. Vol.118 (04), , 0143103-0143106. (**Impact factor; 2.276**)
⁺both authors contributed equally.
4. 'Reinforcement of High Performance Polystyrene/Polyamide/Polythiophene with Multi-walled Carbon Nanotube Obtained through Various Routes'. Composite Interfaces (Taylor & Francis) **2015**; Ali W, Kausar A*, and **Iqbal T**. Vol. 22 (09) 885–897 (**Impact factor; 0.76**)
5. 'Propagation Length of Surface Plasmon Polaritons Excited by a 1D Plasmonic Grating' Current Applied Physics (Elsevier Publishing), **2015**; **T. Iqbal***, Vol. 15 (11) 1445-1452. (**Impact factor; 2.184**).
6. "Synthesis and characterization of carbon based polymer nanocomposites for enhanced conductivity" Journal of Ovonic Research (Forum of chalcogenides Publishing), **2015**: ⁺Iqbal T. and ⁺Ali W*. Vol. 11(6) 293-301 (**Impact factor; 0.488**).
⁺both authors contributed equally.

Year 2016

7. 'Plasmonic Bandgap in 1D Metallic Nanostructured Devices'. Plasmonics (Springer Publishing) **2016**; ⁺M. Javaid* and ⁺T.Iqbal*. Vol. 11(01) 167-173.**DOI: 10.1007/s11468-015-0025-0. (Impact factor; 2.238)**.
⁺both authors contributed equally.
8. 'Attributes of Polymer and Silica Nanoparticle Composites: A Review' Polymer-Plastic Technology and Engineering (Taylor & Francis) **2016**; Meer S, Kausar A*, and **Iqbal T**. Vol. 55(8) 826-861 (**Impact factor; 1.511**)

9. 'Extraordinary optical transmission: Role of the slit width in 1D metallic grating on higher refractive index substrate' *Current Applied Physics* (Elsevier Publishing) **2016**; **T. Iqbal***, and S. Afsheen, - **Vol. 16** (04) 453-458, **DOI-** 10.1016/j.cap.2016.01.005 (**Impact factor; 2.144**).
10. 'Plasmonic Band gap: Role of the slit width in 1D metallic grating on higher refractive index substrate'. *Plasmonics* (Springer Publishing) **2016**; **T. Iqbal***, and S. Afsheen, **Vol. 11** (03) 885–893. **ONLINE, DOI:** 10.1007/s11468-015-0122-0. (**Impact factor; 2.146**)
11. 'Theoretical calculations of structural, electronic and elastic properties of CdSe_{1-x}Te_x: A first principle study' *Chinese Physics B* (Chinese Physics Society and IOP Publishing Ltd) **2016**; M. Shakil, M. Zafar, S. Ahmed, M. R. R. Hashmi, M. A. Choudhry, T. Iqbal, **Vol. 25**(7): 076104. **DOI:** 10.1088/1674-1056/25/7/070201/076104 (**Impact factor; 1.6**)
12. 'Synthesis of Multi-walled Carbon nanotube/Silica Nanoparticle/Polystyrene Microsphere/Polyaniline based Hybrids for EMI Shielding Application' *Fullerenes, Nanotubes and Carbon Nanostructures* (Taylor & Francis) **2016**; Meer S, Kausar A*, and **Iqbal T. Vol. 24**(8): 507–519. DOI: 10.1080/1536383X.2016.1195816 (**Impact factor; 0.836**)
13. 'Trends in Conducting Polymer and Hybrids of Conducting Polymer/Carbon Nanotube: A Review' *Polymer-Plastic Technology and Engineering* (Taylor & Francis) **2016**; Meer S, Kausar A*, and **Iqbal T. Vol. 55**(13): 1416-1440. DOI: 10.1080/03602559.2016.1163601. (**Impact factor; 1.481**)
14. 'Influence of Manganese on structural, dielectric and magnetic properties of ZnO nanoparticles, Digest Journal of Nanomaterials and Biostructures (Forum of chalcogenides Publishing), **2016**: **Tahir Iqbal**, Snobia Ghazal, Shahid Atiq, Abdul Majid, N.R. Khalid, Sumera Afsheen and Niaz Ahmad Niaz. **Vol. 11**(03): 899–908. (**Impact factor; 0.756**).
15. 'Coupling Efficiency of Surface Plasmon Polaritons for 1D Plasmonic Gratings: Role of Under-and Over-milling'. *Plasmonics* (Springer Publishing) **2016**; **T. Iqbal***, and S. Afsheen, **Vol. 11**(05): 1247–1256- DOI: 10.1007/s11468-015-0168-z (**Impact factor; 2.238**)
16. 'Microwave-assisted synthesis of Ag-TiO₂/graphene composite for hydrogen production under visible light irradiation' *Ceramics international* (Elsevier Publishing), **2016**, N. R. Khalid, E. Ahmed, M. Ahmad, N.A. Niaz, M. Ramzan, M. Shakil, T. Iqbal, A. Majid **Vol. 42** (16): 18257–18263-DOI: <http://dx.doi.org/10.1016/j.ceramint.2016.08.149> (**Impact factor; 2.758**)
17. 'Controlling the electronic properties of Gd: MoS₂ monolayer with perpendicular electric field' *Journal of Electroceramics* (Springer Publishing), Abdul Majid, Arslan Ullah, Tahir Iqbal, Usman Ali Rana, Salah Ud-Din Khan, Masato Yoshiya, **2016**; **Vol. 37** (01): 29-33- DOI: 10.1007/s10832-016-0035-0 (**Impact factor; 1.263**)

Year 2017

18. 'One Dimensional Plasmonic Grating: High Sensitive Biosensor' *Plasmonics*. (Springer Publishing) **2017**; **T. Iqbal***, and S. Afsheen. **Vol. 12** (01): 19–25- DOI: 10.1007/s11468-016-0223-4 (**Impact factor; 2.238**).
19. 'Coupling Efficiency of Surface Plasmon Polaritons Excited by 1D metallic Gratings: Far-and Near-field Analysis'. *Plasmonics* (Springer Publishing) **2017**; **T. Iqbal***. **Vol. 12** (01): 215–221- DOI: 10.1007/s11468-016-0252-z (**Impact factor; 2.238**)
20. 'Electron emission characterization of laser-induced gaseous plasma'. *Indian Journal of Pure & Applied Physics* (The Council of Scientific & Industrial Research, New Delhi, India), **2017**, Muhammad Bilal Tahir, M Rafique, M Shahid Rafique, Tahir Iqbal & Ghulam Nabi. **Vol.55**; 145-154. (**Impact factor; 0.739**).
21. 'Structure, Morphology, Thermal, and Electro-magnetic Shielding Properties of Polystyrene Microsphere/Polyaniline/Multi-walled Carbon Nanotube Nano-composite', *Journal of Plastic Film*

- and Sheeting (SAGE Publishing) **2017**, Kausar A*, Meer S, and Iqbal T. **Vol. 33 (03); 262-289.** **Accepted-** DOI: 10.1177/8756087916663813 (**Impact factor; 0.850**)
22. 'Energetic Metallic ion Implantation in Polymers via Cost-effective Laser Driven Ion Source' Applied Physics B, **2017**, Muhammad Bilal Tahir, M. Shahid Rafique, Rabia Ahmed, M. Rafique, Tahir Iqbal, Ali Hasan, 123: 204. doi:10.1007/s00340-017-6762-3, (**Impact factor; 1.782**)
23. 'The Electronic and Magnetic properties of Wurtzite Mn:CdS , Cr:CdS and Mn:Cr:CdS : First Principles Calculations'. Journal of Semiconductors (IOP) **2017**, Azeem Nabi*, Zarmeena Akhtar, **Tahir Iqbal**, Atif Ali, and Muhammad Arshad Javid, Vol.38 (07):073001-8. (**Impact factor; 0.50**)
24. 'A Computational Study of Ferromagnetic Exchange Interactions and Charge Transfer in Codoped Gallium Nitride'. Journal of Superconductivity and Novel Magnetism (Springer Publishing) **2017** Abdul Majid, Naeem Ahmad, **Tahir Iqbal Awan**, Mehreen Javed. DOI 10.1007/s10948-017-4230-2 (**Impact factor; 1.180**).
25. 'Wet Chemical Co-precipitation Synthesis of Nickel Ferrite Nanoparticles and Their Characterization'. Journal of Inorganic and Organometallic Polymers and Materials (Springer Publishing) **2017**, M. B. Tahir, **T. Iqbal**, A. Hassan and S. Ghazal, DOI: 10.1007/s10904-017-0598-5. (**Accepted-Impact factor; 1.577**).

NON- IMPACT FACTOR:

Year 2014

26. "Synthesis and Characterization of SnO₂ Nanorods for Energy Storage Applications" Advanced Science, Engineering and Medicine, (American Scientific Publishers), M. Z. Iqbal*, F. Wang, R. Hussain, **T. Iqbal**, I. Ali, M. Y. Rafique, and S. Ali, Vol. 6 (7), (**2014**), 791-796.

Year 2015

27. 'Surface water contamination in Harsi Nala; an assessment and spatial distribution survey using geographical information systems (GIS) approach'. Journal of Environmental Chemistry and Ecotoxicology (Academic Journals) **2015**; I. Azam*, S. Afsheen, A. Zia, M. K. Sarwar and **T. Iqbal**. Vol. 7(4) 37-48.
28. "Dosimetric comparison among different Head and Neck radiotherapy techniques using PRESAGE® Dosimeter" International Journal of Cancer Therapy and Oncology (Ommega Publishers) **2015**; J. Rehman*, **T. Iqbal**, R. Tailor, A. Majid, J. Ashraf, I. Khan, M. Afzal, G. Ibbott. Vol 3(4):349-358.

Year 2016

29. 'Synthesis of silver, chromium, manganese, tin and iron Nano particles by different techniques' International Journal of Nanoscience and Nanotechnology (Inderscience Enterprises, Limited), **2016** **+Tahir Iqbal***, **+Sunaina Tufail**, and Snobia Ghazal. Vol 13(1): 19-52.
+both authors contributed equally

Year 2017

30. 'Synthesis of Iron Oxide, Cobalt oxide and Silver Nanoparticles by Different Techniques: A Review' International Journal of Scientific & Engineering Research, **2017**, **+Tahir Iqbal***, **+Ali Hassan**, and Snobia Ghazal. Vol. 7 (11) 1178-1221.
+both authors contributed equally
31. 'First-principles study of vibrational modes and Raman spectra in Mn-doped SnO nanoclusters' Journal of Mechatronics (American Scientific Publishers) **2017** Aqsa Khalid , Azeem Nabi*, **Tahir Iqbal** , Nisar Ahmed , M. Junaid Iqbal , Shahzeen Babar, Muhammad Arshad Javid. (**Accepted**).

Research Project As Co-PI: Approved under NRPU Scheme of HEC-Pakistan

- **Carbon and Transition Metal Oxide Nanomaterials based high performance Supercapacitors** (No.6502/Punjab/NRPU/R&D/HEC/2016, Dated 05-04-2017) Rs.5229809/- (Five Million, Two Hundred Twenty Nine Thousand, Eight Hundred Nine).
- **'Reinforcement of Plastic Products by Using Carbon Based Nanomaterials for Local Industrial Applications'** (No.6510/Punjab/NRPU/R&D/HEC/2016, Dated 19-05-2017)
- **"Investigation of Modified Metal Sulfide Composites for Hydrogen Production from Water Splitting"** (No. 6491/Punjab/NRPU/R&D/HEC/2016, dated 19.05.2017) Rs.4574784/- (Four Million, Five Hundred Seventy Four Thousand, Seven Hundred Eighty Four)

PUBLICATION AS PROCEEDINGS OF INTERNATIONAL CONFERENCES

1. An oral presentation on **'1D Nanoplasmonic devices for Efficient biosensing'** **Tahir Iqbal*** and Sumera Afsheen, at 1st International Conference on Mathematics and Physics, at Air University Islamabad on February 14-16, 2017. (Proceeding of the conference-page 36).
2. **"Methods For Preparation of Polymer Nanocomposites"** *W. Ali, **T. Iqbal**, A. Kausar, Conference on Frontiers of Nanoscience and Nanotechnology, Islamabad, June 03-05, 2014, held at PINSTECH, Islamabad, PAKISTAN.
3. 'Coupling Efficiency of 1D Plasmonic Grating: Far- and Near-Field Analysis' at International Conference on **"PHOTONIC IRELAND 2013"** on September 4-6, 2013, in Wellington Park Hotel Conference Suite, Belfast, **UNITED KINGDOM**.
4. "Coupling Efficiency of 1D plasmonic Grating Coupler for Heat Assisted Magnetic Recording" **SPP6**; The 6th International Conference on Surface Plasmon Photonics, (Ref;353-qyya-1412) 26-31 May **2013**, held at Ottawa, **CANADA**.
5. "Light Transmission Through Metallic Grating Using Higher-Refractive Index Substrate" at International Conference on "Photonic Ireland 2011" on September 7-9, 2011, in The Grand Hotel, Malahide, Co. Dublin, **REPUBLIC OF IRELAND**.
6. "Diamond like carbon (DLC) film deposition by dense plasma focus" **4th International Conference on Surfaces, Coatings and Nanostructured Materials (NanoSMat-2009)**, Oct 19-22 2009, at Rome, **ITALY**, ABSTRACT CODE: NS358.
7. "Deposition of Carbon film and its Characterization by Raman Spectroscopy" **"The International Conference for Nanotechnology Industries the Leading Technology of 21st Century"** on April 5-7, 2009 at King Abdullah Institute of Nanotechnology, King Saud University, Riyadh, **SAUDI ARABIA**.
8. "Calibration of High Purity Germanium (HPGe) detector in the range 120 keV to 8500 keV", **Pakistan Institute of Physics Conference 2009**, **T. Iqbal**, M. U. Rajput, S. Ahmed, M. Sultan, M.Sajjad, February 23-26, 2009, University of Engineering & Technology (UET), Lahore, **PAKISTAN**.
9. "Comparison of Doppler Shift in H-alpha line of Balmer Series through Laser Induced and Discharge Plasma", **1st International conference on Research Methodology in Plasma Physics**, **T. Iqbal** and M. Imran: November 21-22, 2008, University of Gujrat, Gujrat. **PAKISTAN**. p14.
10. "Characterization of Carbon Film by Raman Spectroscopy" **1st International Symposium on Bio-Technology; Current trends**, **T. Iqbal** and M. Imran: July 2-4, 2008, University of Malakand, N.W.F.P. **PAKISTAN**.

INVITED TALKS

1. An invited talk on **" Important of Physics in Research"** at at Government Postgraduate college Chakwal on March 27, **2017**, a seminar series funded by higher education department, Government of Punjab.

2. An invited talk on "Role of Physics in Science: A Research Perspective" at Government Postgraduate Gordon college Rawalpindi on December 03, **2016**, a seminar series funded by higher education department, Government of Punjab. The participants from all over the Pakistan participated through video link provided by Higher Education commission of Pakistan.
3. An invited talk on 'Nanotechnology in Modern Era' at seminar on 'Application of Membrane & nanotechnology in process industries' organized by Department of Chemical Engineering, on January 26, **2016**, at Video conference hall, University of Gujrat, Gujrat.
4. An invited talk on "Role of Nanotechnology in Daily life" at Government Postgraduate Gordon college Rawalpindi on January 9, **2016**, a seminar series funded by higher education department, Government of Punjab.
5. An invited talk on "Research Methodologies in Nanoscience" at Government Postgraduate college Chakwal on November 12, **2015**, a seminar series funded by higher education department, Government of Punjab.

ORAL AND POSTER PRESENTATIONS

1. An oral presentation on 'EFFICIENT BIO-SENSING THROUGH ONE DIMENSIONAL PLASMONIC GRATING' **Tahir Iqbal** and Sumera Afsheen, at 1st medcon International NSMC, UoG, 2017, on Global Health Challenges and Indigenous Solution in the Current Dynamics of Pakistan, 03-05 March, 2017, Organized by Nawaz Sharif Medical College , UOG, at Quaid-i-Azam Library Auditorium, University of Gujrat, Hafiz Hayat Campus, Gujrat
2. An oral presentation on '**1D Nanoplasmonic devices for Efficient biosensing**' **Tahir Iqbal*** and Sumera Afsheen, at 1st International Conference on Mathematics and Physics, at Air University Islamabad on February 14-16, 2017.
3. An oral presentation on 'Coupling efficiency of surface plasmon polaritons excited by 1D metallic gratings: role of minimum' for 5th Annual World Congress of Advanced Materials-2016 (WCAM-2016), June 6-8, 2016, Chongqing, **CHINA**.
4. An oral presentation on "**Well patterned three-dimensional (3D) nano-structure arrays for device (Field Emitters and Energy Devices) applications.**" Ghulam Nabi , Waheed S. Khan , C.B. Cao , Samar Tarish , Ahmed Al-Hadad , **Tahir Iqbal**, Yong Lei at National center for Physics (NCP), for (ISS-2016), March 7-11 2016, Islamabad, **PAKISTAN**.
5. An oral presentation on 'Investigation of Head And Neck Radiotherapy Techniques Using Three Dimensional Dosimeter' **M. J. Rehman**, A. Majid ,T. Iqbal, R. C Tailor , M. Isa , M. Afzal, G. S. Ibbott at 14th Shaukat Khanum Cancer Symposium - November 13-15, 2015, Lahore, **PAKISTAN**.
6. A poster presentation on "Coupling Efficiency of 1D plasmonic Grating Coupler for Heat Assisted Magnetic Recording" at SPP6; The 6th International Conference on Surface Plasmon Photonics, (Ref;353-qyya-1412) May 26-31, **2013**, held at Ottawa, **CANADA**.
7. A poster presentation (**NPP-P4**) on '**Coupling Efficiency of 1D Plasmonic Grating: Far- and Near-Field Analysis**' at International Conference on "PHOTONIC IRELAND 2013" on September 4-6, 2013, in Wellington Park Hotel Conference Suite, Belfast, **UNITED KINGDOM**.
8. A poster presentation (**ANSIN-6**) on "**Focus on HAMR**" at "Seagate European Magnetic Storage Conclave at ANSIN" on June 17-18, 2012, at Hilton Templepatrick Hotel & Country Club, Belfast, **UNITED KINGDOM**.
9. A poster presentation on "**Light Transmission Through Metallic Grating Using Higher-Refractive Index Substrate**" at International Conference on "Photonic Ireland 2011" on September 7-9, 2011, in The Grand Hotel, Malahide, Co. Dublin, **REPUBLIC OF IRELAND**.
10. A Oral presentation on "**HAMR waveguide coupling FW1352**" on June 28, 2013, at ANSIN, Center for Nano structured Media (CNM), Physics Building, Queen's University Belfast, **UNITED KINGDOM**.
11. A Oral presentation on "**HAMR waveguide coupling FW1343**" on April 26, 2013, at ANSIN, Center for Nano structured Media (CNM), Physics Building, Queen's University Belfast, **UNITED KINGDOM**.

12. A Oral presentation on "**HAMR waveguide coupling FW1337**" on March 15, 2013, at ANSIN, Center for Nano structured Media (CNM), Physics Building, Queen's University Belfast, **UNITED KINGDOM**.
13. A Oral presentation on "**HAMR waveguide coupling FW1331**" on February 01, 2013, at ANSIN, Center for Nano structured Media (CNM), Physics Building, Queen's University Belfast, **UNITED KINGDOM**.
14. A Oral presentation on "**HAMR waveguide coupling FW1322**" on November 30, 2012, at ANSIN, Center for Nano structured Media (CNM), Physics Building, Queen's University Belfast, **UNITED KINGDOM**.
15. A Oral presentation on "**HAMR waveguide coupling FW1321**" on November 23, 2012, at ANSIN, Center for Nano structured Media (CNM), Physics Building, Queen's University Belfast, **UNITED KINGDOM**.
16. A Oral presentation on "**HAMR waveguide coupling FW1317**" on October 26, 2012, at ANSIN, Center for Nano structured Media (CNM), Physics Building, Queen's University Belfast, **UNITED KINGDOM**.
17. A Oral presentation on "**HAMR waveguide coupling FW1313**" on September 28, 2012, at ANSIN, Center for Nano structured Media (CNM), Physics Building, Queen's University Belfast, **UNITED KINGDOM**.
18. A Oral presentation on "**HAMR waveguide coupling FW1309**" on August 31, 2012, at ANSIN, Center for Nano structured Media (CNM), Physics Building, Queen's University Belfast, **UNITED KINGDOM**.
19. A Oral presentation on "**HAMR waveguide coupling FW1307**" on August 17, 2012, at ANSIN, Center for Nano structured Media (CNM), Physics Building, Queen's University Belfast, **UNITED KINGDOM**.
20. A Oral presentation on "**HAMR waveguide coupling FW1247**" on June 15, 2012, at ANSIN, Center for Nano structured Media (CNM), Physics Building, Queen's University Belfast, **UNITED KINGDOM**.
21. A Oral presentation on "**HAMR waveguide coupling FW1243**" on April 27, 2012, at ANSIN, Center for Nano structured Media (CNM), Physics Building, Queen's University Belfast, **UNITED KINGDOM**.
22. A Oral presentation on "**HAMR waveguide coupling FW1239**" on March 30, 2012, at ANSIN, Center for Nano structured Media (CNM), Physics Building, Queen's University Belfast, **UNITED KINGDOM**.
23. A Oral presentation on "**HAMR waveguide coupling FW1235**" on March 02, 2012, at ANSIN, Center for Nano structured Media (CNM), Physics Building, Queen's University Belfast, **UNITED KINGDOM**.
24. A Oral presentation on "**HAMR waveguide coupling FW1231**" on February 03, 2012, at ANSIN, Center for Nano structured Media (CNM), Physics Building, Queen's University Belfast, **UNITED KINGDOM**.
25. A Oral presentation on "**HAMR waveguide coupling FW1223**" on December 09, 2011, at ANSIN, Center for Nano structured Media (CNM), Physics Building, Queen's University Belfast, **UNITED KINGDOM**.
26. A Oral presentation on "**HAMR waveguide coupling FW1219**" on November 11, 2011, at ANSIN, Center for Nano structured Media (CNM), Physics Building, Queen's University Belfast, **UNITED KINGDOM**.
27. A Oral presentation on "**HAMR waveguide coupling FW1215**" on October 14, 2011, at ANSIN, Center for Nano structured Media (CNM), Physics Building, Queen's University Belfast, **UNITED KINGDOM**.
28. A Oral presentation on "**HAMR waveguide coupling FW1211**" on September 16, 2011, at ANSIN, Center for Nano structured Media (CNM), Physics Building, Queen's University Belfast, **UNITED KINGDOM**.

29. A Oral presentation on "**HAMR waveguide coupling FW1201**" on July 08, 2011, at ANSIN, Center for Nano structured Media (CNM), Physics Building, Queen's University Belfast, **UNITED KINGDOM**.
30. A Oral presentation on "**HAMR waveguide coupling FW1149**" on June 10, 2011, at ANSIN, Center for Nano structured Media (CNM), Physics Building, Queen's University Belfast, **UNITED KINGDOM**.
31. A Oral presentation on "**HAMR waveguide coupling FW1141**" on April 15, 2011, at ANSIN, Center for Nano structured Media (CNM), Physics Building, Queen's University Belfast, **UNITED KINGDOM**.
32. A Oral presentation on "**HAMR waveguide coupling FW1137**" on March 25, 2011, at ANSIN, Center for Nano structured Media (CNM), Physics Building, Queen's University Belfast, **UNITED KINGDOM**.
33. A Oral presentation on "**HAMR waveguide coupling FW1133**" on March 04, 2011, at ANSIN, Center for Nano structured Media (CNM), Physics Building, Queen's University Belfast, **UNITED KINGDOM**.
34. A Oral presentation on "**HAMR waveguide coupling FW1121**" on November 26, 2010, at ANSIN, Center for Nano structured Media (CNM), Physics Building, Queen's University Belfast, **UNITED KINGDOM**.
35. A Oral presentation on "**Laser Light Coupling in HAMR Systems**" on October 22, 2010, at ANSIN, Center for Nano structured Media (CNM), Physics Building, Queen's University Belfast, **UNITED KINGDOM**.
36. A Oral presentation on "**Controlling electron plasma by metal nanostructuring**" on October 15, 2010, at ANSIN, Center for Nano structured Media (CNM), Physics Building, Queen's University Belfast, **UNITED KINGDOM**.
37. A Oral presentation on "**Controlling electron plasma by metal nanostructuring**" on September 24, 2010, at IRCEP Seminar Room, Center for plasma Physics, Physics Building, Queen's University Belfast, **UNITED KINGDOM**.
38. A poster presentation on "Diamond like carbon (DLC) film deposition by dense plasma focus" **4th International Conference on Surfaces, Coatings and Nanostructured Materials (NanoSMat-2009)**, Oct 19-22, 2009, at Rome, **ITALY**, ABSTRACT CODE: NS358.
39. A poster presentation on "Deposition of Carbon film and its Characterization by Raman Spectroscopy" "**The International Conference for Nanotechnology Industries the Leading Technology of 21st Century**" poster presentation at King Abdullah Institute of Nanotechnology, King Saud University, Riyadh, Saudi Arabia, April 5-7, 2009.
40. A Oral presentation on "Calibration of High Purity Germanium (HPGe) detector in the range 120 keV to 8500 keV", **Pakistan Institute of Physics Conference 2009**, T. Iqbal, M. U. Rajput, S. Ahmed, M. Sultan, M.Sajjad, February 23-26, 2009, University of Engineering & Technology (UET), Lahore, Pakistan.
41. A Oral presentation on "Comparison of Doppler Shift in H-alpha line of Balmer Series through Laser Induced and Discharge Plasma", **1st International conference on Research Methodology in Plasma Physics**, T. Iqbal and M. Imran: November 21-22, 2008, University of Gujrat, Gujrat. **PAKISTAN**. p14.
42. A Oral presentation on "Characterization of Carbon Film by Raman Spectroscopy" **1st International Symposium on Bio- Technology; Current trends**, T. Iqbal and M. Imran: July 2-4, 2008, University of Malakand, N.W.F.P. **PAKISTAN**.

CONFERENCES, WORKSHOPS AND SEMINARS ORGANIZED

- ❖ **'Poster Exhibition/competition of Mphil-Weekend student'** on April 14, 2017, held at S106, Al-Khawarzami Block, Department of Physics, University of Gujrat, Gujrat.
- ❖ **Volunteer Activity: 'Project display and demonstration'** by BS-1 Students at Jinnah Public School and Colleges & Government Elementary School, Kot Mir Hussain on February 08, 2017.
- ❖ One day seminar on "**Emerging trends in Nanoscience and Nanotechnology**" on February 01, 2017, held at Department of Physics, University of Gujrat, Gujrat.

- ❖ **'Project exhibition'** on January 25, 2017, held at Department of Physics, University of Gujrat, Gujrat.
- ❖ One day seminar on **“Emerging trends in Material sciences”** on January 20, 2017, held at Video Conference Hall, Alfarabai Block, University of Gujrat, Gujrat.
- ❖ Awareness walk **“Awareness about blood transfusion and communicable disease”** on January 17, 2017, at University of Gujrat, Gujrat.
- ❖ One day seminar on **“DFT approach in Spintronics”** on January 13, 2017, held at Video Conference Hall, Alfarabai Block, University of Gujrat, Gujrat.
- ❖ One day conference on **“Emerging trends in Nanotechnology”** on January 10, 2017, held at Department of Physics, University of Gujrat, Gujrat.
- ❖ One day workshop on **“Teacher Training about Physics Lab”** on January 03, 2017, held at Department of Physics, University of Gujrat, Gujrat.
- ❖ One day conference on **“Emerging technologies in sustainable water processing”** on January 24, 2017, held at Department of Physics, University of Gujrat, Gujrat.
- ❖ One week Mega events **'Physics,-An Emerging Field of Technology' on June 15-19, 2015 at 1st floor, Science block at HH Campus, University of Gujrat.**
- ❖ Three Training workshops on 'Managerial Skills' October 13-18, 2014, **Organized at University of Gujrat** in collaboration with Higher Education Commission.
- ❖ 1st International Conference on “Research Methodology in Plasma Physics” November 21-22, 2008, **Organized at University of Gujrat** in collaboration with Higher Education Commission.
- ❖ One day Seminar on **“From Quarks to Humans”** Organized at Department of Physics, University of Gujrat, Gujrat on 18th June 2008; Speaker; Prof. Dr. Pervaiz A. Hoodbhoy, Chairman, Department of Physics, QAU, Islamabad.
- ❖ One day Seminar on **“Space and Near Earth Plasma”** Organized at Department of Physics, University of Gujrat, Gujrat on 12th April 2008; Speaker; Prof. Dr Hassan Amir Shah, Chairman, Department of Physics, GCU, Lahore.
- ❖ Three days workshop on “Basic Research Techniques in Science and Technology” March 4- 6, 2008, **Organized at University of Gujrat** in collaboration with Higher Education Commission.
- ❖ Two days workshop on “Evaluation and assessment in Semester System” November 10-11, 2007, **Organized at University of Gujrat** in collaboration with Higher Education Commission.

ACADEMIC EVENT AS CHAIR/CHIEF GUEST/GUEST OF HONOR

- ❖ Chief Guest at 'Annual prize Distribution Ceremony 2016-17' organized by Oxford Public School, on March 24, 2017 at Oxford Public School Amir Khan, Tehsil Fateh Jang, Attock.
- ❖ Chief Guest at '3rd Annual prize Distribution Ceremony 2016-17' organized by Allied School Fateh Pur Campus, on 28th February 2017 at Sufi Marriage Hall, Fateh Pur, Jalal Pur Jattan, Gujrat.
- ❖ Chief Guest at 'Annual prize Distribution Ceremony' organized by Oxford Public School, on March 29, 2016 at Oxford Public School Amir Khan, Tehsil Fateh Jang, Attock.
- ❖ Chief Guest at 'Annual prize Distribution Ceremony' organized by Oxford Public School, on March 23, 2015 at Oxford Public School Amir Khan, Tehsil Fateh Jang, Attock.

TRAININGS WORKSHOPS AND COURSES ATTENDED

- ❖ Two Days 'TRAINING WORKSHOP ON SELF ASSESSMENT REPORT (SAR)', held on April 28-29, 2017, in Video Conference Hall, Al Farabi Block, Organized by Quality enhancement cell (QEC), University of Gujrat, Gujrat
- ❖ Two Day Interdisciplinary Workshop on **"Chromatography and Mass Spectrometry"** on **March 29-30, 2017 at Video Conference Hall, HH Campus**, Organized by the Department of Chemistry in collaboration with ORIC-UoG.
- ❖ Hand on Training Session on “Learning Management System (LMS)” organized by Directorate of IT services at A07, Al-Farabi Block, University of Gujrat, Gujrat on 09.03.2017.
- ❖ 'WORKSHOP ON EUROPEAN UNION PROGRAMME, ERASMUS' invitation extended by the European Union Delegation to Pakistan and the Higher Education Commission to attend a workshop to give an overview of the opportunities of the programme for Pakistani universities.

held at University of Health Sciences, Lahore, on 15-12-2016(Nominated by ORIC-UoG through email dated December 14, 2016).

- ❖ Two Days Training Workshop for the Capacity Building of Chairpersons/HODs/QEC Focal Persons/QEC Directors of Sub Campuses on **“Innovative Management and Leadership Tools for Enhancing Quality of Academic Departments”** on January 27-28, 2017 in Video Conference Hall, Al Farabi Block, Organized by Quality enhancement cell (QEC), University of Gujrat, Gujrat (Ref No.UOG/REG/153/2929 dated 25th January 2017 from Registrar office) .
- ❖ Free On-line Workshop on 'Automatic Citation Management Techniques Using Endnote Software' March 22, 2016, **HD Video Conferencing**, organized by Institute of Research promotion (IRP), Lahore, **PAKISTAN**.
- ❖ Free On-line Workshop on 'Informatics for writing manuscripts' February 27, 2016, **HD Video Conferencing**, organized by Institute of Research promotion (IRP), Lahore, **PAKISTAN**.
- ❖ Sixteen week (April-July 2015) 'Entrepreneur ship course' **held at ORIC, University of Gujrat, Gujrat, Pakistan**.
- ❖ Two day on-line workshop on **"Managing Academic Thesis"** held on January 23-24, 2015, organized by Institute of Research promotion (IRP), Lahore, **PAKISTAN**.
- ❖ International Workshop on **"5G Emerging Technologies for Disaster Management”** held at HEC Auditorium, Islamabad on January 14, 2015, Marriot Islamabad 15 January, 2015 and at University of Gujrat - Gujrat, on 16-17 January 2015, **PAKISTAN**.
- ❖ "Two Days Orientation Program for the Enhancement of Training Centers of HEIs" on September 22-23, 2014, held at Learning Innovation Division (LID), Higher Education Commission (HEC), Islamabad, **PAKISTAN**.
- ❖ A Training workshop on "QSI Student Guide" on 2nd September 2012, at Elmwood Learning & Teaching Centre- (Independent study center), Queen's University Belfast, **UNITED KINGDOM**.
- ❖ A training workshop on "COMSOL by COMSOL Ltd: Belfast" in The Auditorium, McClay Library, on 7th March 2012, at Queen's University Belfast, **UNITED KINGDOM**.
- ❖ Training course on "Scanning near field optical microscopy (SNOM)", in Center for Nanostructured Media (CNM), on October 17-19, 2011, Queen's University Belfast, **UNITED KINGDOM**.
- ❖ A Training workshop on "QSI Student Guide" on 1st September 2011, at Elmwood Learning & Teaching Centre- (Independent study center), Queen's University Belfast, **UNITED KINGDOM**.
- ❖ A training workshop on "Communication Skills in a Work Setting", in International & Postgraduate Student Center (IPSC) Seminar Room 2, on 18th May 2011, at Queen's University Belfast, **UNITED KINGDOM**.
- ❖ A training workshop on "Creating Posters using PowerPoint 2007", in McClay Library Training Room 1, on 17th May 2011, at Queen's University Belfast, **UNITED KINGDOM**.
- ❖ A training workshop on "Preparing for Differentiation", in International & Postgraduate Student Center (IPSC) Seminar Room 2, on 16th May 2011, at Queen's University Belfast, **UNITED KINGDOM**.
- ❖ A training workshop on "Introduction to Excel Pivot Tables", in McClay Library Training Room 1, on 4th May 2011, at Queen's University Belfast, **UNITED KINGDOM**.
- ❖ A training workshop on "Your Personality and your PhD", in International & Postgraduate Student Center (IPSC) Seminar Room 3, on 30th March 2011, at Queen's University Belfast, **UNITED KINGDOM**.
- ❖ A training workshop on "Microsoft Excel 2: Managing Data", in McClay Library Training Room 1, on 15th March 2011, at Queen's University Belfast, **UNITED KINGDOM**.
- ❖ A training workshop on "Excel 1 and 2 (condensed)", in McClay Library Training Room 1, on 9th March 2011, at Queen's University Belfast, **UNITED KINGDOM**.
- ❖ A training workshop on "Academic Poster Presentation Skills", in International & Postgraduate Student Center (IPSC) Seminar Room 3, on 8th March 2011, at Queen's University Belfast, **UNITED KINGDOM**.
- ❖ A training workshop on "Problem Solving using Mathematica", in Lanyon Building, Newark Room, on 23rd February 2011, at Queen's University Belfast, **UNITED KINGDOM**.

- ❖ A training workshop on " The Basics of Graphic Design: Ideas for Posters, Presentations, Theses and Web Pages", in Elmwood LTC/IS1, on 9th February 2011, at Queen's University Belfast, **UNITED KINGDOM**.
- ❖ A training workshop on "RefWorks for Science and Engineering", in McClay Library Training Room 1, on 8th March 2011, at Queen's University Belfast, **UNITED KINGDOM**.
- ❖ A training workshop on "Microsoft Excel 1: Essentials", in McClay Library Training Room 1, on 8th February 2011, at Queen's University Belfast, **UNITED KINGDOM**.
- ❖ A training workshop on "Laboratory Demonstrating", in International & Postgraduate Student Center (IPSC) Seminar Room 2, on 4th February 2011, at Queen's University Belfast, **UNITED KINGDOM**.
- ❖ A training workshop on "SPSS: Introduction to OLS Regression", in International & Postgraduate Student Center (IPSC) Seminar Room 2, on 24th January 2011, at Queen's University Belfast, **UNITED KINGDOM**.
- ❖ A training workshop on "RefWorks", in McClay Library Training Room 1, on 18th January 2011, at Queen's University Belfast, **UNITED KINGDOM**.
- ❖ A training workshop on "CAPM exam preparation", in International & Postgraduate Student Center (IPSC) Seminar Room 3, on 14th January 2011, at Queen's University Belfast, **UNITED KINGDOM**.
- ❖ A training workshop on "Advanced Project Management", in International & Postgraduate Student Center (IPSC) Seminar Room 3, on 13th January 2011, at Queen's University Belfast, **UNITED KINGDOM**.
- ❖ A training workshop on "Project Risk Management", in International & Postgraduate Student Center (IPSC) Seminar Room 2, on 12th January 2011, at Queen's University Belfast, **UNITED KINGDOM**.
- ❖ A training workshop on "Introduction to MS Project", in International & Postgraduate Student Center (IPSC) Seminar Room 2, on 11th January 2011, at Queen's University Belfast, **UNITED KINGDOM**.
- ❖ A training workshop on "Introduction to Project Management", in International & Postgraduate Student Center (IPSC) Seminar Room 3, on 10th January 2011, at Queen's University Belfast, **UNITED KINGDOM**.
- ❖ A training workshop on "Writing for publication", in Peter Froggatt Centre/01/020, on 9th December 2010, at Queen's University Belfast, **UNITED KINGDOM**.
- ❖ A training workshop on "Academic Plagiarism", in Bernard Crossland Building/115, on 1st December 2010, at Queen's University Belfast, **UNITED KINGDOM**.
- ❖ A training workshop on "An Introduction to Mathematica", in International & Postgraduate Student Center (IPSC) Seminar Room 2, on 21st October 2010, at Queen's University Belfast, **UNITED KINGDOM**.
- ❖ A training workshop on "Matching expectations of international student and institution: understanding 'Culture Shock'", in International & Postgraduate Student Center (IPSC) Seminar Room 3, on 13th October 2010, at Queen's University Belfast, **UNITED KINGDOM**.
- ❖ A training workshop on "Postgrad Research Induction Workshop", in IRCEP Seminar Room, on 27th September 2010, at Queen's University Belfast, **UNITED KINGDOM**.
- ❖ A five days national workshop on "Seismicity, seismotectonics, neotectonics and earth quake forecasting in northern Pakistan" July 20-24, 2009, held at National Center for Physics (NCP), Islamabad, Pakistan.
- ❖ 3-Days workshop on “**Teaching Methodology & Microteaching Practices**” on November 15-17, 2008, organized by Higher Education Commission (HEC) at University of Gujrat, Gujrat, Pakistan
- ❖ 2-Weeks Training “ **Basic Computer Training Course**” on February 13,2007 to February 26, 2007, at Rawalpindi, conducted by Punjab Information Technology Board, Government of Punjab.
- ❖ 7 weeks training course “**Master Trainers in Physics**” July-August 2006 conducted by **Higher Education Commission (HEC)** at Quaid-I – Azam University Islamabad.
- ❖ One-day workshop on “**Plasma Technology**” on 27th August 2005 organized by Experimental Plasma Physics Group at Quaid-i-Azam University Islamabad.

- ❖ Two days workshop on “ **Soft X-ray Beamline for SESAME**” on April 26-27, 2005, Organized by National Center for Physics, at Quaid-I-Azam University Islamabad.
- ❖ Three months training course “**Intel Teaching with Microsoft**” from September – November 2002, at Grammar Public school, Rawalpindi
- ❖ Three months course “**English Language Diploma**” from February – April 2000, at Khyber Institute of Professional Skills (KIPS), Rawalpindi.
- ❖ Three months course “**Computer Diploma**” from April – June 2000, at Khyber Institute of Professional Skills (KIPS), Rawalpindi.

CONFERENCES, SYMPOSIUMS, SEMINARS AND LECTURES ATTENDED

- ❖ 6th Annual Innovation Summit at University of Punjab, Lahore, Punjab, Pakistan on March 8-9, 2017, as one of the **Judge** to assess the exhibited technologies (Nominated by ORIC-UoG).
- ❖ One day seminar on “**Creating an Innovative Ecosystems in Universities**” organized by Department of Zoology, on February 09, 2017 at A7, Al-Farabi Block, University of Gujrat, Gujrat.
- ❖ '**1st Gujrat Literary festival 2017**' organized by Student Services Center (SSC), on January 26, 2017 at Allama Iqbal Hall, University of Gujrat, Gujrat.
- ❖ One day awareness seminar on "**Intellectual Property Rights Management**" on **Wednesday 14th Dec, 2016 at Video Conference Hall, University of Gujrat**, organized by Office of Research Innovation & Commercialization in collaboration with Intellectual Property Office Govt. of Pakistan.
- ❖ '**One Day Symposium on Nanotechnology Research in Pakistan**' held on November 9, 2016 at National Institute for Biotechnology and Genetic Engineering (NIBGE), Faisalabad, Pakistan
- ❖ '**Two-Day International Conference on Contemporary Pakistan**' on Thursday June 2 & Friday June 3, 2016 at Video Conference Hall, organized by Department of Political Science & International Relations, Hafiz Hayat Campus University of Gujrat.
- ❖ 1st International Conference on “**Emerging Technologies for Waste Water process and Alternate Energy Resources** ”organized by Faculty of Engineering & Technology on 01 & 02 -06-2016 at Auditorium Hall Central Library, University of Gujrat, Gujrat.
- ❖ '**All Pakistan Project & Poster Competition**,' projects from all the Universities of Pakistan, organized by Faculty of Engineering & Technology on 01 & 02 -06-2016 at University of Gujrat, Gujrat.
- ❖ '**Synthesis and characterization of ZnO nanoparticles doped with Manganese**' S. Ghazal, and **T. Iqbal**, Conference on Frontiers of Nanoscience and Nanotechnology, Islamabad, September 08-10, 2015 held at PINSTECH, Islamabad, PAKISTAN.
- ❖ "**Methods For Preparation of Polymer Nanocomposites**" *W. Ali, **T. Iqbal**, A. Kausar, Conference on Frontiers of Nanoscience and Nanotechnology, Islamabad, June 03-05, 2014, held at PINSTECH, Islamabad, PAKISTAN.
- ❖ International Conference on "**PHOTONIC IRELAND 2013**" on September 4-6, 2013, in Wellington Park Hotel Conference Suite, Belfast, **UNITED KINGDOM**.
- ❖ SPP6: The 6th International Conference on Surface Plasmon Photonics, on May 26-31, 2013, in The Delta Ottawa City Centre at Ottawa, **CANADA**.
- ❖ A ASC seminar on "The noise is the signal: the role of shot noise in nanophysics" by Jan van Ruitenbeck – Universiteit Leiden, on 16th May 2013 in room G.005, David Bates Building, Queen's University Belfast, **UNITED KINGDOM**.
- ❖ A ASC seminar on "Growth, Transformation, and Assembly of Nanoscale Materials: Insights from Simulation" by Kristen Fichthorn, Penn State University, on 10th May 2013 in room 01/028, David Keir Building, Queen's University Belfast, **UNITED KINGDOM**.
- ❖ A ASC seminar on "The Earth's core from first principles simulation" by Dario Alfe – University College London, on 25th April 2013, at Bell theatre Physics, Queen's University Belfast, **UNITED KINGDOM**.
- ❖ A ASC seminar on "Multiscale modelling of polymer-solid interfaces" by Karen Johnston – Max-Planck-Institut Mainz, on 11th April 2013, in room 01.403, David Keir Building, Queen's University Belfast, **UNITED KINGDOM**.

- ❖ A ASC seminar on "Electrical and thermal transport in nanomaterials from first-principles" by Nicola Bonini – King's College London, on 4th April 2013, at Bell theatre Physics, Queen's University Belfast, **UNITED KINGDOM**.
- ❖ A Seminar on "Engineered plasmonic nanostructures for plasmonics" by Prof. Sang-Hyun Oh Department of Electrical and Computer Engineering, University of Minnesota-Twin Cities, on 17th December 2012, at IRCEP Seminar Room, Physics Building, Queen's University Belfast, **UNITED KINGDOM**.
- ❖ "Seagate European Magnetic Storage Conclave at ANSIN" on 17-18, June 2012, at Hilton Templepatrick Hotel & Country Club, Belfast, **UNITED KINGDOM**.
- ❖ A Seminar on "Modeling of electron and lattice thermodynamics in semiconductors interacting with swift ions" by Tzveta Apostolova, on 14th June 2012, at IRCEP Seminar Room, Physics Building, Queen's University Belfast, **UNITED KINGDOM**.
- ❖ A Seminar on "Laser-driven ion accelerations by using cluster-gas targets" by Dr. Y. Fukuda, Advanced Photon Research Center, Japanese Atomic Energy Agency, on 11th June 2012, at IRCEP Seminar Room, Physics Building, Queen's University Belfast, **UNITED KINGDOM**.
- ❖ A seminar on "Attosecond Science" by Professor Paul Corkum from the University of Ottawa and National Research Council of Canada, on 23rd May 2012, at Bell Lecture Theatre, Physics Building, Queen's University Belfast, **UNITED KINGDOM**.
- ❖ A Seminar on "How can liquid-crystal-based spatial light modulators advance light microscopy?" by Professor Monika Ritsch-Marte, Innsbruck Medical University, Austria, on 24th February 2012, at IRCEP Seminar Room, Physics Building, Queen's University Belfast, **UNITED KINGDOM**.
- ❖ IOP Seminar on "Attosecond physics: the first decade" by Professor Ferenc Krausz, a director of the MPI for Quantum Optics at Garching and professor at the Ludwig-Maximilians University of Munich, on 8th February 2012 at Bell Lecture Theatre, Physics Building, Queen's University Belfast, **UNITED KINGDOM**.
- ❖ A Seminar on "Research activities using the high-power laser facility at Advanced Photonics Research Institute in Korea?" by Prof. Hhyong Suk, Advanced Photonics Research Institute Gwangju Institute of Science and Technology, Republic of Korea, on 25th January 2012, at IRCEP Seminar Room, Physics Building, Queen's University Belfast, **UNITED KINGDOM**.
- ❖ International Conference on "**Photonic Ireland 2011**" on 7-9, September 2011, in The Grand Hotel, Malahide, Co. Dublin, **REPUBLIC OF IRELAND**.
- ❖ A Seminar on "Particle Therapy - can new accelerators reduce the cost?" by Dr Niels Bassler on 6th April 2011 at Bell Lecture Theatre, Physics Building, Queen's University Belfast, **UNITED KINGDOM**.
- ❖ A Seminar on "Probing New Physics Using High Intensity Laser Systems" by Professor Mattias Marklund, University of Umea, Sweden, on 1st July 2011, at IRCEP Seminar Room, Physics Building, Queen's University Belfast, **UNITED KINGDOM**.
- ❖ The 42nd Larmor Lecture on "Seven Magnetic Moments" by Professor Mike Coey FRS, Trinity College Dublin, on March 03, 2011, at The Larmor Lecture Theatre, Physics Building, Queen's University Belfast, **UNITED KINGDOM**.
- ❖ Inaugural Lecture On "Light Moves Matter! Physics And Applications Of Laser Accelerators" By Prof. Marco Borghesi, On February 24, 2011, At Bell Lecture Theatre, Physics Building, Queen's University Belfast, **UNITED KINGDOM**.
- ❖ Institute of Physics Seminar on "Less Reality, More Security" by Prof. Artur Ekert University of Oxford and National University of Singapore, on February 23, 2011, at Bell Lecture Theatre, Physics Building, Queen's University Belfast, **UNITED KINGDOM**.
- A IOP Ireland Lecture on "A Skin Full of Photophysics" by Prof David Birch, University of Strathclyde , on 23rd March 2011 at Bell Lecture Theatre, Physics Building, Queen's University Belfast, **UNITED KINGDOM**.
- A Seminar on "Time resolved scanning Kerr microscopy" by Prof. Rob Hicken from the University of Exeter, on 26th November 2010 at IRCEP seminar room, Physics Building, Queen's University Belfast, **UNITED KINGDOM**.

- A seminar on "plasmas in liquids, their science and applications" by Prof, Ken Stalder, on 21st May 2010, at IRCEP seminar room, Physics Building, Queen's University Belfast, **UNITED KINGDOM**.
- INAUGURAL LECTURE ON 'Oxides for Electronics - crystal engineering on the atomic scale' by Robert Bowman (Professor of Materials Physics) on 20 May 2010 in Bell Lecture Theatre, Physics Building, Queen's University Belfast, **UNITED KINGDOM**.
- A Seminar on "Theory and experiments on ultra-intense laser interaction with nanostructured Ni Velvet targets" by Dr R Marjoribanks on 27th April 2010 at IRCEP seminar room, Physics Building, Queen's University Belfast, **UNITED KINGDOM**.
- A Seminar on "Laser-plasma X-ray production with nano-structured targets" 15th April 2010, By Dr Robin Marjoribanks, University of Toronto, Bell Lecture Theatre, Queen's University Belfast, **UNITED KINGDOM**.
- ❖ Lecture on "CRYSTALS" by Marty Gregg (Professor of Materials Science and Condensed Matter Physics-QUB), on 11th March 2010 in Larmor Lecture Theatre, Physics Building, Queen's University Belfast, **UNITED KINGDOM**.
- ❖ Annual lecture on "Our Surprising Sun" by Prof Eric Priest, FRS from the University of St Andrews on 17th December 2009 in Larmor Lecture Theatre, Physics Building, Queen's University Belfast, **UNITED KINGDOM**.
- ❖ The first Institute of Physics - Ireland seminar on "Ultracold Bosons and Fermions" by Prof Tilman Esslinger of ETH Zurich on 2nd December 2009, in Larmor Lecture Theatre, Physics Building, Queen's University Belfast, **UNITED KINGDOM**.
- ❖ 34th International Nathiagali Summer College, on 22nd June - 4th July 2009, at National Center for Physics (NCP), Islamabad, **PAKISTAN**.
- ❖ 4th One day Seminar on Vacuum Coating (SVST-04) on June 03, 2009, at National Institute of Vacuum science and technology (NINVAST), Islamabad, **PAKISTAN**.
- ❖ 1st Pre-INSC spring 2009, on April 6-9, 2009 at National Center for Physics (NCP), Islamabad, **PAKISTAN**.
- ❖ Pakistan Institute of Physics Conference 2009, February 23-26, 2009, University of Engineering & Technology (UET), Lahore, **PAKISTAN**.
- ❖ 1st International conference on Research Methodology in Plasma Physics, November 21-22, 2008, University of Gujrat, Gujrat. **PAKISTAN**.
- ❖ 1st International Symposium on Bio- Technology; Current trends, July 2-4, 2008, University of Malakand, N.W.F.P. **PAKISTAN**.

TECHNICAL SESSION CHAIRED IN CONFERENCES

- ❖ 1st International Conference on "**Emerging Technologies for Waste Water process and Alternate Energy Resources** "organized by Faculty of Engineering & Technology on 01 & 02 -06-2016 at Auditorium Hall Central Library, University of Gujrat, Gujrat.

HAND ON EXPERIENCE RELATED TO RESEARCH WORK

- **COMSOL Modeling**
- Nano-fabrication (Nano-devices)- FEI, NOVA 600, Dual Beam
- Near field optical microscope (SNOM)
- Designing and execution of Far-field Optical Characterization setup for Nanodevices
- X-Ray reflectivity(XRR)
- Tencor
- Atomic force Microscopy (AFM)
- Thermal Evaporation System
- Raman Spectroscopy
- Scanning electron microscopy (SEM)
- High voltage probe, Rogowski coil
- Charge couple Device (CCD) camera

- High Purity Germanium (HPGe) Detector
- Micro hardness tester

SOFTWARE LEARNT (FOR RESEARCH PURPOSE)

- COMSOL Multiphysics
- MATLAB
- ORIGIN
- LA TEX
- Clewin3
- Refwork
- Zetero
- Endnote

HONORS AND MEMBERSHIPS

HONORS AND AWARDS

- Financial Reward against Publications 2016: '**Cheque awarded by Vice Chancellor-UoG on May 30, 2017**' for the research productivity during year 2016.
- **Poster Award: 1st place at SPP6 conference May 26-31,2013** held at Ottawa, Canada.
- **“Award of Excellence 2007”** on 23-03-2007, as Deputy Warden Hostel, from Government Gordon College Rawalpindi.
- **“Best Teacher Award 2006”** on 18-09-2006, from Government Postgraduate Gordon College Rawalpindi.
- Distinction in **Punjab Public Service commission exams 2003-2004**.
- **“Key note speaker”** at **1st International Symposium on Bio- Technology; Current trends**, July 2-4, 2008, University of Malakand, N.W.F.P. Pakistan.
- **“Head of Physics Department”**, University of Gujrat, Gujrat, from 3rd October 2007 to 28th October 2008 & 1st October 2015 to date.
- New **“teaching and Research Lab established”** being In-charge Lab in Department of Physics, University of Gujrat, Gujrat, Pakistan.
- Established **“Physics Society of UoG”** in 2008, Department of Physics, University of Gujrat, Gujrat, Pakistan.
- Design **“Comprehensive Rules & Regulation”** for newly started Hostels of the University of Gujrat in 2007 which was approved by Syndicate of UOG.

SCHOLARSHIPS- worth **£101, 944** equivalent to 15.3 Million Pak rupees.

- **16th June 2010: ‘Special Research Studentship’ 2010-2013 (~ £40,770 which is 6.5 Million in Pak Rupees) as stipend in addition to £12, 115 × 3 = £36, 345 -worth 5.5 Million Pak rupees for fee) from Queen’s University Belfast, UNITED KINGDOM, for PhD in Physics.**
- **ON 26th August 2009: ‘DEL/EPSRC Postgraduate taught Studentship (~ £13,290, worth 2.1Million Pak Rupee as stipend in addition to £ 11, 539 - worth 1.7 Million Pak rupees for fee)’ 2009-2010 from Queen’s University Belfast, UNITED KINGDOM, for M.Sc Plasma Physics.**

MEMBERSHIPS

- Member IEEE Magnetic Society, **2010-13**.
- Member IEEE Communications Society, **2010-13**.
- Life member, Pakistan Physical Society (PPS), Pakistan since 2009.
- Life member, Pakistan Institute of Physics (PIP), Pakistan since 2009.
- Member for South Asian Student Society (SASS), 2010, 2011, 2012. Student Union (SU) Building, Queen’s University Belfast, **UNITED KINGDOM**.

- General Secretary for South Asian Student Society (SASS), 2012. Student Union (SU) Building, Queen's University Belfast, **UNITED KINGDOM**.

DISTINCTIVE PROFESSIONAL DUTIES/ ACHIEVEMENTS

- M.Phil Viva Examiner at 'University of Manshera'-Manshera, KPK, Pakistan (2014, 2015).
- **Practical/Via Examiner for "University of the Punjab"** since 2009 to date.
- **Practical Examiner, Sub-examiner and Center Inspector of Examinations** for BISE Rawalpindi, FBISE, & BISE Gujranwala, 1999 to 2014.

ADDITIONAL RESPONSIBILITIES WITHIN THE UNIVERSITY OF GUJRAT

S #	Name/Title	Period/year	Served as
1.	Program Team: Self Assessment Report (SARs) for PhD Physics	2017	<i>Chairman</i>
2.	Program Team: Self Assessment Report (SARs) for BS, MSc & MPhil Physics	2017	<i>Chairman</i>
3.	Teaching/Faculty workload Committee	2017	<i>Member/ Secretary</i>
4.	Feasibility Committee to start B.A/BSc/B.Com in constituent colleges of the UoG (City Campuses of UoG)	2016	<i>Member</i>
5.	Prospectus Committee	2016	<i>Secretary/ Member</i>
6.	Fact book Data for 2013 & 2014	2016	<i>Secretary/ Member</i>
7.	Critic/Center Inspector, for 49 examination centers of the UoG	2015	Critic/Center Inspector
8.	Head, Department of Physics	01-10-2015 to date	<i>HoD</i>
9.	Mater Level PEEF Scholarship Committee	December 2015 to date	<i>Member</i>
10.	Visit to Affiliated colleges/sub-campus Committee	December 2015 to date	<i>Coordinator</i>
11.	Departmental Research and Review Committee (DRRC)	November 2015 to date	<i>Convener/ Member</i>
12.	Board of Studies (BoS)-Physics	November 2015 to date	<i>Convener/ Member</i>
13.	Human Resource Development Center (HRDC)	05-08-2014 to 15-12-2014	<i>In-charge</i>
14.	PhD & M.Phil Evaluation Committee	2013-2013	<i>Member</i>
15.	Hall Council	2013-to date	<i>Vice Chairman</i>
16.	Grievances Committee for Prime Minister Laptop Distribution Scheme, Higher Education Commission (HEC), Pakistan.	2013-to date	<i>Member</i>
17.	Physics Affairs for City Campuses	2013-to 2015	<i>Focal person</i>
18.	Proctorial Board	2013-to date	<i>Member</i>
19.	Scholarship Award Committee	2013-to 2015	<i>Member</i>
20.	Committee for proceeding and activities of MOU signed by SIMORGH Women's Resource and Publication Center	2013-to date	<i>Member</i>
21.	Sport Gala 2008	2008-2008	<i>Member</i>
22.	Boys Hostel	2007-2009	<i>Warden</i>
23.	Curriculum Committee, Faculty of Sciences	2007-2009	<i>Member</i>
24.	Prospectus Committee	2007-2009	<i>Member</i>
25.	Industry Academic Linkages Committee	2008-2009	<i>Member</i>

26.	Conferences/Workshops Organizing Committee	2008-2009	<i>Member</i>
27.	Orientation Committee 2007	2007-2007	<i>Member</i>
28.	Board of Studies for Physics	2007-2009	<i>Member</i>
29.	Department of Physics	03-10-2007 to 28-10-2008	<i>Coordinator /Head</i>
30.	Terminal Exams of the Semester	2008, 2009, 2013, 2014, 2015	<i>Superintendent</i>

ADDITIONAL RESPONSIBILITIES WITHIN THE PHYSICS DEPARTMENT-UOG

S #	Name/Title	Period	Served as
1.	Academic Activity Monitoring Committee	2013- 2015	<i>Chair</i>
2.	Discipline Committee	2013- 2015	<i>Chair</i>
3.	Departmental Doctoral and M.Phil Committee (DDMPC)	2013- 2015	<i>Member</i>
4.	Admission Committee	2013-to date	<i>Member</i>
5.	M.Phil Admission & Exam Committee	2013-to date	<i>Member</i>
6.	Undergraduate Lab	2013- 2015	<i>In-charge</i>
7.	Physics Society of UOG	2013-to date	<i>Founder & Advisor</i>
8.	Various Probe Committees	2013-to date	<i>Chair & Member</i>
9.	Physics Society of UOG	2008-2009	<i>President</i>
10.	Undergraduate Lab	2007-2009	<i>In-charge</i>
11.	Purchase Committee	2008-2009	<i>Member</i>
12.	Purchase Committee	2007-2008	<i>Chair</i>
13.	Tender preparation Committee	2007-2008	<i>Chair</i>
14.	Tender preparation Committee	2009-2009	<i>Member</i>
15.	Tender Technical Evaluation Committee	2007-2008	<i>Chair</i>
16.	Tender Technical Evaluation Committee	2008-2009	<i>Member</i>
17.	Discipline & Sports Committee	2007-2009	<i>Chair</i>

REVIEWER OF RESEARCH JOURNALS

- Current Applied Physics.
- Plasmonics
- European Physical Journal D
- IEEE Photonics Journal
- Journal of Laser Science: Fundamental Theory and Analytical Methods
- Journal of Physics and Chemistry of Solids
- Journal of Physics B: Atomic, Molecular and Optical Physics

RESEARCH COLLABORATIONS

- Kings College, London, UNITED KINGDOM.
- Queen's University Belfast, Belfast, UNITED KINGDOM.
- National Center for Physics (NCP), Islamabad, PAKISTAN.
- University of the Punjab (PU), Lahore, Punjab, PAKISTAN.
- COMSATs Institute of Information Technology, Islamabad, PAKISTAN.
- International Islamic University (IIU), Islamabad, PAKISTAN.
- Quaid-i-Azam University, Islamabad, PAKISTAN.
- University of Engineering and Technology (UET), Lahore, Punjab, PAKISTAN.

- University of Engineering and Technology (UET), Taxila, Punjab, PAKISTAN.
- University of Peshawar, Peshawar, Khyber Pakhtun Khah (KPK), PAKISTAN.

CURRENTLY SUPERVISING RESEARCH STUDENTS =08

S.No	Student's Name	Roll #	Title of Thesis	Degree	Status
1.	Muhammad Javaid	15014310-005	NOT defined	PhD	Initial work is in progress
2.	Muhammad Yousaf	15014310-006	NOT defined	PhD	Initial work is in progress
3.	Anum Khalid	14071710-004(UOG)	Plasmonic Based Biosensing Using attenuated Total Reflection (ATR) Technique	M.Phil	Thesis-Ready to be submitted
4.	Rafida Sahresh	15081710-003	Development and Characterization of Ionogels with its Applications in Real world	M.Phil	Thesis-Ready to be submitted
5.	Muhammad Haqnawaz	15081710-004	Growth and Characterization of Graphene based Electrodes	M.Phil	Thesis-Ready to be submitted
6.	Umair Shabbir	15081710-016	Synthesis and Characterization of Perovskites Material	M.Phil	Thesis-Ready to be submitted
7.	Seep Akram	15081710-002	Efficient biosensing through 1D Nanoplasmonic devices	M.Phil	Data Analysis is in process
8.	Zain Ashfaq		NOT defined	MSc	Thesis-Ready to be submitted

MPHIL THESIS SUPERVISED = 18

S. No	Student's Name	Roll #	Title of Thesis	Defense date
1.	Saba Khalil	14071710-001(UOG)	Investigation of Plasmonic Bandgap in Various 1DNanostructure Device	July 25, 2017
2.	Muhammad Farooq	14071710-002	Study of the Germination of Irradiated Wheat Seeds	July 25, 2017
3.	Salim Mansha	14071710-006	Study of the Effects of Irradiation on the Germination of Rice Seeds	July 25, 2017
4.	Gulshan Ara	14071710-005(UOG)	Synthesis and Characterization of Metal Sulfide Nanoparticles	January 06, 2017
5.	Muhammad Saleem	13061710-008 (UOG)	A DFT Study of the Effects of Nitrogen Vacancies on Electronic and Magnetic Properties of Ti:AlN	December 26, 2016
6.	Faisal Ali	14071710-003(UOG)	Synthesis and Properties of Modified Ag ₂ S Nanoparticles	December 26, 2016
7.	Musarat Munir	AS751905 (AIOU)	Plasmonic Based Bio-sensing through 1D Nano-structured Devices	October 28, 2016
8.	Amina Ijaz	13061710-003 (UOG)	Evaluation of plasma parameters and elemental analysis of nanoparticles of Silicon dioxide, Silicon dioxide Cadmium Titanium Trioxide, Cobalt Titanite using laser induced breakdown	May 19, 2016
9.	Maria Andleeb	13061710-009 (UOG)	Investigation of elemental analysis in Cosmetic products by LIBS technique	May 19, 2016
10.	Sana Baber Meer	13061710-004 (UOG)	Preparation And Properties of Polystyrene Based Novel Nanocomposites	March 31, 2016
11.	Sundas Mumtaz	13051710-004 (UOG)	Growth and Optimization Of Nickel Oxide Thin Film for Solar Cell Applications	March 31, 2016
12.	Nafeesa Shamim	13051710-007 (UOG)	Synthesis and Analysis of Hybrid Nanostructures of Titanium Dioxide and Graphene Oxide	March 31, 2016
13.	Naveedullah	13051710-006 (UOG)	Synthesis and Characterizations of Graphene Oxide Based Titanium Dioxide Nanocomposites	March 31, 2016
14.	Mariam Seemab	11041710-001 (UOG)	A study of Metallic Ion Implantation into Silicon	December 11, 2015
15.	Shamsa Firdous	11041710-002 (UOG)	Characterization of Continuous Laser Treated Human Enamel	December 11, 2015
16.	Snobia Ghazal	13051710-001 (UOG)	Synthesis and Characterization of Mn Doped ZnO Nano-particles.	December 11, 2015
17.	Waqas Ali	11041710-007 (UOG)	Synthesis and Characterizations of Carbon Based Polymers Nanocomposites	April 02, 2015
18.	Muhammad Javaid	11041710-003 (UOG)	Factors Affecting Plasmonic Bandgap and SPP Resonances in 1D Plasmonic Gratings	December 19, 2014

MSC & BS THESIS SUPERVISED = 10

S.No	Student's Name	Roll #	Title of Thesis	Degree	Year
1.	Ali Hassan	12081510-049	Synthesis and characterization of Nickel Ferrite nanoparticle by Wet Chemical Co-precipitation method	BS (Hons)	2016
2.	Arsalan Liaqat	12081510-033	Green Synthesis and Characterization Of Iron Nanoparticles by Using Different Extracts	BS (Hons)	2016
3.	Alina Shafaqat	12081510-039	A DFT study of Intrinsic point defects in Monolayer Molybdenum Diselenide	BS (Hons)	2016
4.	Mehak Ghafoor	12081510-004	A DFT Study of Electronic Properties Of 2D Molybdenum Dichalcogenides MoX_2 (X=O, S, Se, Te, Po)	BS (Hons)	2016
5.	Sunaina Tufail	12081510-090	Synthesis and characterization of Manganese doped Zinc nanoparticle		2016
6.	Rimsha Ali	10060610-026 (UOG)	Investigation of Coupling Efficiency Of Buried and Exposed Nano-plasmonic Grating	BS (Hons)	2015
7.	Muhammad Kazam Ali	09030810-035 (UOG)	AlTiN as Decorative Thin Film using Cathodic Arc Deposition Technique	M.Sc	2015
8.	Muhammad Usman	07010810-016 (UOG)	The dynamics of runaway electrons	M.Sc	2009
9.	Mehwish Qamar	07010810-092 (UOG)	Deposition Techniques for Carbon Coating	M.Sc	2009
10.	Samia Aslam	07010810-035 (UOG)	Deposition Techniques for Aluminum Nitride	M.Sc	2009

REPORT WRITING SUPERVISED-03

S.No	Student's Name	Roll#	Title of Thesis	Degree	Year
1.	Sobia Tabassum	07010810-009	A Review of Big Bang theory	M.Sc	2009
2.	Adeela Nairan	07010810-015	Schemes of Radioactive Decay	M.Sc	2009
3.	Shoaib Hafeez	07010810-005	A study of Boolean Algebra and simplification of Boolean function	M.Sc	2009

COURSES TAUGHT AT POSTGRADUATE LEVEL

S.No	Level/ Class	Title of Course	University/ DAI	Year
1.	PhD	Project Planning, Monitoring and Evaluation	University of Gujrat, Gujrat	2016
2.	PhD	Materials Science	University of Gujrat, Gujrat	2015
3.	M.Phil	Classical Mechanics	University of Gujrat, Gujrat	2014-15
4.	M.Phil	Material Science-I	University of Gujrat, Gujrat	2014-15
5.	M.Phil	Electrodynamics	University of Gujrat, Gujrat	2013-14
6.	M.Phil	Physics of Nanotechnology	University of Gujrat, Gujrat	2013-14, 15,16
7.	M.Sc/BS	Methods of Experimental Physics	University of Gujrat, Gujrat	2013-14
8.	M.Sc/BS	Introduction to Nanotechnology	University of Gujrat, Gujrat	2013-14,15
9.	M.Sc/BS	Lab V & VI	University of Gujrat, Gujrat	2013-14

10.	Level 2	Lab (Level 2)	Queen's University Belfast, UK	2010-13
11.	M.Phil	Experimental Plasma Physics	University of Gujrat, Gujrat	2009
12.	M.Sc	Classical Mechanics	University of Gujrat, Gujrat	2008
13.	M.Sc	Quantum Mechanics - I	University of Gujrat, Gujrat	2008
14.	M.Sc	Quantum Mechanics -II	University of Gujrat, Gujrat	2009
15.	M.Sc	Electronics	University of Gujrat, Gujrat	2008, 2009
16.	BS (Hons)	Mechanics -I	University of Gujrat, Gujrat	2007, 2008
17.	BS (Hons)	Mechanics -II	University of Gujrat, Gujrat	2008, 2009
18.	BS (Hons)	Teaching Lab	University of Gujrat, Gujrat	2008, 2009
19.	BS (Hons)	Basic Electronics	Infonexus, College of Information Technology, Rawalpindi.	2003, 2004
20.	BS (Hons)	Circuit Theory	Infonexus, College of Information Technology, Rawalpindi.	2003, 2004

RESEARCH PROJECTS COMPLETED DURING MY STUDY

- PhD Project: Nanoplasmonic grating coupler for transducer applications (at Center for Nanostructured Media-CNM , Queens University Belfast, UNITED KINGDOM-UK)- Supervised by Dr Paul Dawson (Primary supervisor) & Prof Robert M. Bowman (Secondary Supervisor)**

The project investigated the excitation of surface plasmon polaritons (SPPs) on a one dimensional (1D) grating etched in a gold film on a (high-index) gallium phosphide (GaP) substrate. The experimental component of the work addresses the design and building of an optical set-up for the far-field characterization of the spatially confined ($\sim 20 \times 20 \mu\text{m}$) gratings in transmission, with better than 2° angular resolution, and the commissioning and use of a WiTec scanning near-field optical microscope (with bespoke modification) for near-field analysis. The purpose of the latter is to track the propagation of SPPs on the planar gold film region beyond the grating launch site. Both the far- and near-field experimental data are interpreted with reference to modelled results generated by using COMSOL, a commercial, finite-element analysis software package.

Coupling efficiency of the incident light to the SPP is studied as a function of slit width where the grating periodicity and the (optimized) gold thickness remain constant. Defining a simple and convenient measure of the coupling efficiency the optimum slit width is found to be between $1/3$ and $1/2$ of the grating period. Such grating devices support only the fundamental mode and offer less radiative scattering of SPPs. The experimental results are in agreement with the far-field modelling results and the optimum slit-width range in the grating devices is close to that suggested by near-field analysis. The (maximum) propagation length, L_{SPP} , just outside the grating device is found to be $\sim 13.33 \pm 0.13 \mu\text{m}$ under excitation by laser light of 785 nm wavelength.

The grating on high refractive index substrate described above has intended application in heat assisted magnetic recording where it is envisaged that the focussing of optical energy to nanoscale

dimensions will take place using SPPs generated by using a grating coupler integrated on a semiconductor laser chip.

**2. Controlling Of Electron Plasma By Metal Nanostructuring (at Center for Plasma Physics, Department of Physics and Astronomy, during MSC from Queens University, Belfast, UK)-
Supervised by Prof Anatoly V Zayast**

This research project describes the controlling of electron plasma excitation by metal nanostructuring which in turn provide the efficient control of optical properties of metal. Coupling of light to electron plasma excitations near the metal surface provide efficient mean for the electromagnetic field localisation and enhancement on subwavelength scale. Nanoscale light manipulation is important in many areas of modern technologies, such as nanophotonics, sensing, and high-density data storage. The primary objective of this project is to investigate the light coupling to plasmonic modes using high-refractive index substrate emulating Vertical Cavity Surface emitting laser (VCSEL). The secondary objective is to investigate a possibility of SPP amplification propagating on Au/GaP interface by controlling emission of GaP in plasmonic modes.

Transmission of light through a set of one-dimensional plasmonic crystals created on the Au film on GaP substrate has been studied. Dispersion of plasmonic crystal has been measured showing efficient excitation of surface plasmon polariton Bloch modes. Coupling of light through the plasmonic crystal to the surface waves propagating on the metal interface was studied using scanning near-field optical microscopy. About 25% coupling efficiency has been demonstrated. Strongly enhanced emission from GaP has been observed by the plasmonic modes of the crystal. The results show potential of plasmonic crystals for applications requiring light out coupling from VCSEL sources into plasmonic waveguides.

3. Theory project ; Introduction to numerical physics; (at Center for plasma Physics during MSC from Queens University, Belfast, UK)- Supervised by Dr Michael Geissler

This project includes, Introduction to **MATLAB**; Aim: define variables (scalar, vector, matrix), plot variable and ranges of variables, plot function, manipulate data, write matlab scripts. Numerical integration / differentiation of some given functions using linear interpolation. Fourier transformation of some basic functions using the built-in matlab fft functions. Proofing of some fundamental fourier properties (e.g even/odd function, Conjugate Complex, time shift, frequency shift). Meaning of Nyquist criterium, how to improve the resolution in time/frequency domain. Using fft to integrate / differentiate given functions

Manipulation of a laser pulse during propagation. Propagation effects in dispersive media (e.g. spectral phase manipulation). Propagation effects in Kerr medium (e.g. self-phase modulation). Finalised the poster and the matlab-program running: A program to simulate the propagation of a short laser pulse though a kerr and a dispersive medium. Input parameter: pulse duration in femto-seconds, peak intensity in W/cm^2 , n_2 (nonlinear index of refraction, e.g. self-phase modulation), length of the kerr medium, D_w , length of the dispersive medium

- the spectrum for different pulse durations for

- the propagation through a dispersive medium
- the propagation through a Kerr medium

4. **Experimental Project; Electrical Measurements, (at Center for plasma Physics during MSC from Queens University, Belfast, UK) Supervised by Prof Dr Bill Graham**

In this project, I have measured the main parameters of plasma, the charged particle densities, electron temperatures, plasma potential and floating potential using an electrostatic or Langmuir Probe. Also measured a Langmuir Probe Characteristic under a specific operating condition and plotted this characteristic and from the plot determined all the accessible plasma parameters, then determined the Debye Length for the plasma. Familiarised with the specific issues of making measurements in RF driven plasmas and the measurement of the electron energy distribution function. Now by use the automated system to measure the plasma parameters and electron energy distribution under a range of plasma operating conditions. Then plotted the eedfs and plasma parameters and interpret their behaviour in terms of understanding of plasma physics.

5. **Experimental Project ; Optical Measurements, (at Center for plasma Physics during MSC from Queens University, Belfast, UK) Supervised by Timo Gans Gans & Deborah O'Connell.**

In this project have learnt about how to measure and interpret optical spectra from a plasma by using broadband and high resolution grating spectrometers. I have measured optical spectra from broad band spectrometer under specific operating conditions. Identified the observed emission lines using online atomic databases and plotted various ratios of emission line intensities as a function of varied operational parameters. Finally discussed the observed dependences and given possible explanations.

I have learnt how to use a high resolution spectrometer for molecular spectroscopy and how to analyse the spectra to obtain rotational temperatures related to the gas temperature under a range of plasma operating conditions. Then, plotted the spectra and analysed temperatures as a function of operating parameters. Interpreted their behaviour in terms of our understanding of plasma physics.

6. **Experimental Project; Laser Produced plasma (XUV Spectroscopy), (at Center for plasma Physics during MSC from Queens University, Belfast, UK) Supervised by Prof Dr Marco Borghesi**

Two spectra are obtained from the Flat Field Spectrometer (FFS). In each case, the emission is from a carbon target. The spectral window for both spectra is somewhere within in the range 10 – 35nm, the exact range being different for the two spectra. Both spectra were produced by a pulse containing 2 J in 1 ns, focussed to a line approximately 6 mm FWHM, and ~100 um width, giving an intensity of $3.5 \times 10^{11} \text{ Wcm}^{-2}$. The difference in the lines observed in each spectrum is due to the different filtering and types of detector used. The difference in the detector responses are as follows.

For spectra A, the filtering used was 0.4 μm of Al. The detector used was a CCD known as a “back thinned” type, which is much more sensitive in the region from 10 nm to 30 nm than it is from 2 nm to 5 nm. For spectrum B, The filtering used was 1 μm of Parylene-N + 0.2 μm of Al. The detector was CCD known as an

“open electrode” type. This CCD is much more sensitive in the range from 2 nm to 5 nm than it is in the range from 10 nm to 30 nm.

In the both spectra, the detector is placed 229.5 ± 1 mm horizontally and 69 ± 1 mm vertically from the grating centre. Lines are identified on each of the spectrum to plot a graph of showing the position of each line in terms of pixel number, vs. the tabulated wavelength of the line, and confirmed that the dispersion curve defined by the points is a smooth monotonic function across the spectrum. Finally I was able to deduce the incidence angle used for the grating in each case.

7. Experimental Project; Characterization of Carbon film by Raman Spectroscopy; (at Experimental Plasma Physics, Department of Physics during M.Phil from Quaid-i-Azam University, Islamabad, Pakistan) Supervised by Prof Dr Muhammad Zakaullah

The deposition of amorphous carbon films is made on silicon substrates, using a low energy (1.4 kJ) dense plasma focus. The silicon substrates are placed in front of the graphite inserted anode at a 5 cm distance for different angular positions (0° , 8° , and 12°) with respect to the anode axis. The films are deposited using 25 focus shots at an optimum pressure of 0.75 mbar by using argon as working gas. The structural information of the deposited films is obtained by using Raman spectroscopy at room temperature with 785 nm line of a solid-state diode laser at an operating power of 100mW. The analyses show the deposition of both graphite-type trigonal sp^2 and diamond-type tetragonal sp^3 films. The surface morphology is studied by using a scanning electron microscope. The irradiation by energetic high-fluence ions results in surface swelling of the substrate, increasing its roughness. With higher fluence, the surface damage is significant as a consequence of the excessive energy deposited on the substrate.

8. Experimental Project ; Calibration of High Purity Germanium (HPGe) detector (at PINSTECH, Islamabad, Pakistan during MSc from University of Punjab, Pakistan.) Supervised by Dr Muhammad Sajjad & Dr Muhammad Usman Rajput (Co-Supervisor)

This research project investigated the efficiency response curve of High Purity Germanium (HPGe) detector over the wide energy range, covering from 120 to 8500 keV. The efficiencies were measured for different counting geometries by using point radionuclide standards (mono energetic as well as multi gamma emitters) supplied by IAEA and the capture gamma ray facility installed at PINSTECH nuclear reactor PARR-1. The measured efficiencies were required to fit with a suitable fitting function for interpolation within the energy range of interest. Several fitting functions were proposed in the literature covering different energy ranges. The functions giving the best fit to experimental data are presented. The work has successfully extended the response curve beyond 1500 keV to 8500 keV, which is the region where the standard calibration radionuclides are not available. Thermal neutron capture gamma ray facility provided the collimated neutron beam, extracted from the core of the reactor and made to react with NH_4Cl target to produce the capture gamma rays for determining the efficiencies in the extended region. It was found that the capture gamma ray provides satisfactory solution to extend the absolute efficiency calibration in MeV range. It was also found that the fitting function linear in its parameter was highly satisfactory upto 1500

keV but proved insufficient upto 8500 keV. The exponential function giving the good fit over the range has been presented. Good agreement has been found between the experimentally measured absolute efficiencies and the predicted result.

VOLUNTEER ACTIVITIES

- ❖ Volunteer assistance on "**Physics Open Day**" on 12th and 13th September 2013, at IRCEP Seminar Room, Physics Building, Queen's University Belfast, **UNITED KINGDOM**.
- ❖ Volunteer assistance on "**Large Hadron Collider Exhibition**", on 4th May 2013 to 10th May 2013, at IRCEP Seminar Room, Physics Building, Queen's University Belfast, **UNITED KINGDOM**.
- ❖ "Student Guides for the QGIS team" during the Enrolment and Registration period, 5th September 2011 to 30th September 2011, at Queen's University Belfast, **UNITED KINGDOM**.
- ❖ "Student Guides for the QGIS team" during the Enrolment and Registration period, 12th September 2012 to 30th September 2012, at Queen's University Belfast, **UNITED KINGDOM**.
- ❖ Volunteer worker/member of "Welcome team to welcome International Students", on last week of September 2011, 2012, at Queen's University Belfast, **UNITED KINGDOM**.
- ❖ Volunteer assistance to fundraising/stalls for South Asian Student Society (SASS), in Welcome week on September 2010, 2011, 2012. Student Union (SU) Building, Queen's University Belfast, **UNITED KINGDOM**.
- ❖ Volunteer worker/member (since 2000 to date) of various Welfare/ community development societies in Pakistan.

REFERENCES

- **Professor Dr Muhammad Faheem Malik**
Dean, Faculty of Science.
University of Gujrat, Hafiz Hayat Campus, Gujrat.
Email: muhammad.faheem@uog.edu.pk
- **Prof. Robert Bowman**
Director, Center for Nanostructured Media,
Department of Physics and Astronomy,
Queen's University Belfast, Belfast.
Northern Ireland, BT7 1NN, UK.
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