

Dr. Muhammad Mumtaz

Professor (Tenured)

Chairman, Department of Physics

Ex-Director (Academics & Examination)

Room No. 208, Department of Physics,

Faculty of Sciences (FOS),

Ibn-Al-Haythum Block, International Islamic

University (IIU), Sector H-10 Islamabad (44000),

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(2) mmumtaz75@yahoo.com

PERSONAL

Father's Name	Ghulam Qasim
Date & Place of Birth	May 04, 1975, Bhakkar, Pakistan.
CNIC #	61101-7899717-7
Passport #	AE0277173
Marital Status	Married
Nationality	Pakistani
Languages	English, Urdu, Saraiki and Punjabi.
Permanent Address:	Village Ravi, Tehsil & P/O Kallur Kot, District Bhakkar, Punjab, Pakistan.
Present/Postal Address:	H # 496, St. # 22, Sector F-15/1 (JKCHS), Islamabad, Pakistan.

ACADEMIC QUALIFICATION

Post Doc. -2

[Physics (Experimental Condensed Matter Physics)]

Post Doc. -1

[Physics (Experimental Condensed Matter Physics)]

Ph. D.

[Physics (Experimental Condensed Matter Physics)]

M. Phil.

[Physics (Experimental Condensed Matter Physics)]

(First Division)

M. Sc.

Physics

(First Division)

B. Sc.

Physics, Maths. (A&B)

(First Division)

November 20, 2017 – April 27, 2018

University of Missouri St. Louis, USA

July 01, 2012 – June 20, 2013

Institute of Physics (IOP) CAS, Beijing, China

April 27, 2004 – November 25, 2009

Quaid-i-Azam University, Islamabad, Pakistan

February 01, 2002 – February 26, 2004

Quaid-i-Azam University, Islamabad, Pakistan

September 20, 1995 – March 26, 1998

University of the Punjab, Lahore, Pakistan

September 15, 1992 – August 12, 1995

University of the Punjab, Lahore, Pakistan

F. Sc.

Pre-Engineering
(First Division)

Matriculation

Science Group
(First Division)

B. Ed.

Teaching & Administration
(First Division)

July 15, 1990 – August 05, 1992

Board of Intermediate & Secondary Education,
Sargodha, Pakistan

March 01, 1988 – April 24, 1990

Board of Intermediate & Secondary Education,
Sargodha, Pakistan

March 01, 1998 – August 12, 2002

Allama Iqbal Open University, H-8 Islamabad,
Pakistan

RESEARCH INTERESTS

Experimental Condensed Matter Physics (Superconductivity, Nano-superconductor Composites and Energy storage materials)

M. Phil Thesis Title

“Characterization of $\text{Cu}_{1-x}\text{Tl}_x\text{Ba}_2\text{Ca}_2\text{Cu}_4\text{O}_{12-\delta}$ superconductor thin films”

Ph. D Thesis Title

“Synthesis and characterization of $\text{Cu}_{0.5}\text{Tl}_{0.5}\text{Ba}_2\text{Ca}_{n-1}\text{Cu}_n\text{Zn}_y\text{O}_{2n+4-\delta}$; $n = 3, 4$ superconductors”

Post Doc.-1 Project Title

“Study of Quantum Phenomena in Mesoscopic Superconductors”

Post Doc.-2 Project Title

“High performance anode material for Lithium-ion batteries”

PROFESSIONAL EXPERIENCE

- ❖ Served for about **four (04)** years (from 14-05-1998 to 25-04-2002) as Lecturer (BPS-17), Department of Physics, Army Public School and College (Boys) Lalazar, Rawalpindi, Pakistan.
- ❖ Served for about **eight (08)** years (from 27-04-2002 to 19-03-2010) as a Lecturer (BPS-17), Department of Physics in Federal Government College (Men) F-10/4, Islamabad, Pakistan.
- ❖ Served for about **seven and half ($7\frac{1}{2}$)** years (from 20-03-2010 to 23-08-2017) as an Assistant Professor (TTS), Department of Physics, Faculty of Sciences (FS), International Islamic University, H-10 Islamabad, Pakistan.
- ❖ Served for about **Four years and Ten months** (from 23-08-2017 to 10-06-2022) as an Associate Professor (Tenured), Department of Physics, Faculty of Sciences (FS), International Islamic University, H-10 Islamabad, Pakistan.

- ❖ Presently, working as Professor (Tenured) since June 11, 2022, Department of Physics, Faculty of Sciences (FOS), International Islamic University Islamabad, Pakistan.

I am well-versed in the following courses at graduation level.

1. Materials Science (I & II)
2. Solid-State Physics (I & II)
3. Semiconductor Physics
4. Statistical Mechanics
5. Electrodynamics.
6. Quantum Mechanics.
7. Atomic & Molecular Physics
8. Experimental Techniques (I & II)
9. Classical Mechanics
10. Nano-structured Materials
11. Nano-structural Characterization Techniques
12. Advanced Mathematical Methods of Physics
13. Physics of superconductivity
14. Nano-science in superconductivity
15. Composite Materials

ADMINISTRATIVE EXPERIENCES

- ✚ Served for about Ten (10) months (from November, 2021 to August, 2022) as Director (Academics & Examination), International Islamic University, H-10 Islamabad, Pakistan.
- ✚ Presently, working as Chairman, since August 06, 2025, Department of Physics, Faculty of Sciences (FOS), International Islamic University Islamabad, Pakistan.

RESEARCH EXPERIENCES

- ✚ Nearly **seven (07)** years research experience (from 2003 to 2010) in Material Science Laboratory, Department of Physics, Quaid-i-Azam University Islamabad, and Pakistan, where I actively contributed in establishing the following characterization techniques during my M. Phil and Ph. D research work.
 1. Samples preparation
 2. Resistivity measurements
 3. Critical current density measurements
 4. Ac-susceptibility measurements

5. Fourier Transform Infrared (FTIR) absorption spectroscopy
6. Dielectric measurements
7. X-ray diffraction (XRD) and crystal structure analysis
8. X-ray Photoemission Spectroscopy (XPS).
9. Scanning Electron Microscopy (SEM) and EDX measurements.
10. Oxygen content determination

I am still involved in the process of developing rf & dc-sputtering systems for the deposition of thin films of superconductors and magnetic high-density storage materials.

✚ Worked about **one (01)** year (1th July 2012 to 20th June 2013) as an International Young Scientist Fellow (Post Doc) at Institute of Physics (IOP), Chinese Academy of Sciences (CAS), Beijing 100084, R. China, and got the following expertise during my stay at IOP in R. China.

1. I got expertise on the following latest experimental equipments/techniques

- (i) Physical Properties Measurement System (PPMS) by Quantum Design
- (ii) Hall Effect measurements
- (iii) Magnetron sputtering for superconducting thin films
- (iv) Ultraviolet photolithography
- (v) Electron-beam lithography for nano-structured superconducting thin films
- (vi) Pulse Laser Deposition (PLD) for the growth of superconducting thin films
- (vii) Scanning Electron Microscopy (SEM) and Electron Dispersive Spectroscopy (EDS)
- (viii) FTIR spectroscopy

2. I got expertise on the following theoretical Models

- (i) Aslamazov–Larkin (AL) Model
- (ii) Lawrence–Doniach (LD) Model
- (iii) Maki–Thompson (MT) Model
- (iv) Kosterlitz-Thouless (KT) transition in 2D systems

3. I developed the International Collaborations with

- (i) Beijing National Laboratory of Condensed Matter Physics SC03 research group at Institute of Physics, Chinese Academy of Sciences, Beijing 100190 China.
- (ii) Department of Engineering Mechanics, Center for Nano and Micro Mechanics, Tsinghua University, Beijing 100089, China.

✚ Worked for about **Six (06)** months (November 2017 to April 2018) as “Visiting Scientist” at Center for Nanoscience (William Clay building), Department of Physics and Astronomy, University of Missouri St. Louis, USA.

I got expertise on the following latest experimental equipment/techniques

- (i) Cyclic voltammetry

(ii) Battery testing

✚ More than **Fifteen (15)** years research experience from 20th March 2010 to date in Material Research Laboratory, Department of Physics, FOS, International Islamic University, H-10 Islamabad, Pakistan.

NATIONAL/ INTERNATIONAL COLLABORATIOS

I have the following collaborations at National and International level

1. Materials Science Laboratory, Department of Physics, Quaid-i-Azam University, Islamabad, Pakistan.
2. Experimental Physics Labs, National Centre for Physics, Quaid-i-Azam University, Islamabad, Pakistan.
3. Nano Science & Catalysis Division, National Center for Physics, Shadhara Valley Road, Quaid-i-Azam University Campus, Islamabad 45320, Pakistan
4. Department of Sciences and Humanities, FAST, National University of Computer & Engineering Sciences, Islamabad, Pakistan.
5. School of Chemical and Materials Engineering (SCME), National University of Science and Technology (NUST) H-12, Islamabad, Pakistan.
6. School of Natural Sciences (SNS), National University of Science and Technology (NUST) H-12, Islamabad, Pakistan.
7. Ibn-e-Sina Institute of Technology, H-11/4, Islamabad, Pakistan
8. Central Diagnostic Laboratory, Physics Division PINSTECH, Islamabad 45500, Pakistan.
9. Department of Physics Research, Institute for Research & Medical Consultations (IRMC), Imam Abdulrahman Bin Faisal University, P.O. Box 1982, Dammam 31441, Saudi Arabia.
10. Institute of Physics, Chinese Academy of Sciences and Beijing National Laboratory of Condensed Matter Physics, Beijing 100190, China.
11. Department of Engineering Mechanics, Centre for Nano and Micro Mechanics, Tsinghua University, Beijing 100089, China.
12. Department of Physics and Astronomy, Center for Nanoscience (William Clay building), University of Missouri St. Louis, USA.
13. School of Material Science and Engineering, Xian Polytechnic University, Xian 710048, Shaanxi, China

BS RESEARCH PROJECTS SUPERVISED AT DEPARTMENT OF PHYSICS, FBAS, IIUI

1. Group (BS 2014)

{Syed Muhammad Raza (01-FBAS/BSPHY/F10), Daniyal Hamza Mehdi (06-FBAS/BSPHY/F10), Syed Hussain Naazzar Bukhari (14-FBAS/BSPHY/F10), and Muhammad Moeed Awan (19-FBAS/BSPHY/F10)}

Project title: “Observation of Josephson Junctions like weak links behavior in nanoparticles/superconductor composites”

2. Group (BS 2015)

{M. Waqas-ur-Rehman (70-FBAS/BSPHY/S11), Shoaib Azeem (73-FBAS/BSPHY/S11), Saad Ullah (74-FBAS/BSPHY/S11) and Ahsan Akhtar (90-FBAS/BSPHY/S11)}

Project title: “Dielectric properties of $(\text{Zn})_y/\text{CuTi-1223}$ nano-superconductor composites”

3. Group (BS 2016)

{Naseem Hassan (379-FBAS/BSPHY/S13), Moin Khan (382-FBAS/BSPHY/S13), Anas Mehmood (387-FBAS/BSPHY/S13) and Waqas Ahmed (386-FBAS/BSPHY/S13)}

Project title: “Inter-comparison of activation energy of (Ni, Co, Cr) nanoparticles added CuTi-1223 superconductor”

4. Group (BS 2017)

{Mustehsin (518-FBAS/BSPHY/F13), Usama Tehseen (511-FBAS/BSPHY/F13) and Muhammad Ali (506-FBAS/BSPHY/F13)}

Project title: “Study of Dielectric Properties of Uncoated and Silica Coated Hematite ($\alpha\text{-Fe}_2\text{O}_3$) nanoparticles”

5. Group (BS 2019)

{Sana Ullah (890-FBAS/BSPHY/F15), Hamza Nazir (881-FBAS/BSPHY/F15) and Bahar Hussain (854-FBAS/BSPHY/F15)}

Project title: “Study of Dielectric Properties of Un-coated and Silica Coated BaFe_2O_4 Nanoparticles”

6. Group (BS 2020)

{Qazi Hashmat Ali Khan (1032-FBAS/BSPHY/F16) and Muhammad Hassaan (1035-FBAS/BSPHY/F16)}

Project title: “Study of Dielectric Properties of Un-coated and Silica Coated Barium Hexaferrites”

7. Group (BS 2020)

{Qamar Zaman (1022-FBAS/BSPHY/F16) and Mudassir Abdul Aziz (1119-FBAS/BSPHY/F16)}

Project title: “Impedance and Modulus Study of Un-coated and Silica Coated Barium Hexaferrites”

8. Group (BS 2021)

{Arslan Bashir (1168-FBAS/BSPHY/F17), Muhammad Rashid (1186-FBAS/BSPHY/F17), Tayyab Umer (1191-FBAS/BSPHY/F17)}

Project title: “Synthesis and Frequency Dependent Dielectric Properties of $\text{Co}_{1-x}\text{Ba}_x\text{Fe}_2\text{O}_4$ Nanoparticles”

9. Group (BS 2022)

{Saqib Nazir (1386-FBAS/BSPHY/F18), Umair Ali (1387-FBAS/BSPHY/F18), Muhammad Hammad Nawaz (1441-FBAS/BSPHY/F18)}

Project title: “Dielectric Properties of Uncoated and Silica Coated Strontium Hexaferrites”

10. Group (BS-I 2023)

{Muhammad Usama Malik (1468-FBAS/BSPHY/S19), Muhammad Inam-Ul-Haq (1495-FBAS/BSPHY/S19), Saifullah Awan (1534-FBAS/BSPHY/S19)}

Project title: “Effect of Silica Coating on Impedance and Modulus Properties of Strontium Hexaferrites”

11. Group (BS-II 2023)

{Rehan Ali (1506-FBAS/BSPHY/S19), Arslan Tahir (1514-FBAS/BSPHY/S19), Danyal Arshad (1542-FBAS/BSPHY/S19)}

Project title: “Effect of Silica Coating on Dielectric Properties of Calcium Ferrite Nanoparticles”

12. Group (BS-I 2024)

{**M. Kaleem** (2048-FBAS/BSPHY/F20), **Haris Tanveer** (2083-FBAS/BSPHY/F20), **Dawood Shafiq** (2107-FBAS/BSPHY/F20)}

Project title: “Structural, Electronics, Optical, Mechanical and Thermodynamics properties of single Halide Perovskite for Photovoltaic and Optoelectronics applications; DFT study”

13. Group (BS-II 2024)

{**Danish Rashid** (2053-FBAS/BSPHY/F20), **M. Shahroz** (2092-FBAS/BSPHY/F20), **Dawood Shafiq** (2101-FBAS/BSPHY/F20)}

Project title: “Investigation of CoFe_2O_4 Nanoparticles and MWCNTs/rGO Nanohybrids for Energy”

14. Group (BS-III 2024)

{**Muhammad Ahmed Saleem** (1837-FBAS/BSPHY/S20), **Muhammad Yasir** (1846-FBAS/BSPHY/S20), **Mubasher Saleem** (1848-FBAS/BSPHY/S20)}

Project title: “Study the doping effect of aluminium on physical and dielectric properties of CuO nanoparticle”

15. Group (BS-IV 2024)

{**Abu bakar** (1849-FBAS/BSPHY/S20), **Muhammad Anas Qureshi** (1852-FBAS/BSPHY/S20), **Muhammad Junaid Raza** (1853-FBAS/BSPHY/S20)}

Project title: “Effects of aluminium doping on optical, impedance and modulus properties of CuO nanoparticles”

MSc RESEARCH PROJECTS SUPERVISED AT DEPARTMENT OF PHYSICS, FBAS, IIUI

1. Group (M.Sc. 2014)

{Ejaz Ali (156-FBAS/MScPHY/S12), Ismail Ikram (161-FBAS/MScPHY/S12), and Muhammad Ahmed Khan (178-FBAS/MScPHY/S12)}

Project title: “Dielectric properties of $(\text{Ag})_y/\text{CuTl-1223}$ nano-superconductor composites”

2. Group (M.Sc.2014)

{Sana Tariq (183-FBAS/MScPHY/S12), and Ayesha Iqbal (189-FBAS/MScPHY/S12)}

Project title: “Effects of silver nanoparticles addition on superconducting properties of CuTl-1223 matrix”

3. Group (M.Sc. 2014)

{Anam Shah (132-FBAS/MScPHY/F11)}

Project title: “Noble metals (Ag, Au) nanoparticles addition effects on superconducting properties of CuTl-1223 phase”

4. Group (M.Sc. 2014)

{Usman Sajid (165-FBAS/MScPHY/S12) and Zaheer Ahmed (193-FBAS/MScPHY/S12)}

Project title: “Dielectric properties of $(\text{NiFe}_2\text{O}_4)_x/\text{CuTl-1223}$ nano-superconductor composites”

5. Group (M.Sc. 2015)

{Muhammad Naveed (224-FBAS/MScPHY/S13), Muhammad Imran (230-FBAS/MScPHY/S13), and Badshah Amin (162-FBAS/MScPHY/S13)}

Project title: “Dielectric properties of (ZnO)_y/CuTl-1223 nano-superconductor composites”

6. Group (M.Sc. 2015)

{M. Naqqash Haider (345-FBAS/MScPHY/F13), Danyal Tayab (359-FBAS/MScPHY/F13), and M. Junaid Asghar (364-FBAS/MScPHY/F13)}

Project title: “Comparison of superconducting transport properties of different magnetic nanoparticles-CuTl-1223 matrix”

7. Group (M.Sc. 2016)

{Aftab Ahmed Khan (425-FBAS/MScPHY/S14)}

Project title: “Comparisons between Ni and Co ferrites/CuTl-1223 nanoparticles-superconductor composites”

8. Group (M.Sc. 2016)

Muhammad Zahoor Burki (425-FBAS/MScPHY/S14)

Project title: “Fabrication of Hetero Junction Photoanode for Solar Water Splitting”

9. Group (M.Sc. 2019)

{M. Fahad Aamir (759-FBAS/MScPHY/F17), M. Awais Imtiaz (760-FBAS/MScPHY/F17), and Abdul Rehman (776-FBAS/MScPHY/F17)}

Project title: “Comparative dielectric investigation of MFe₂O₄ nanoparticles (M = Co, Mg, Cr, Mn)”

10. Group (M.Sc. 2020)

{M. Fasih Aamir (968-FBAS/MScPHY/F18), Iqrar Saqib (951-FBAS/MScPHY/F18), and Jibran Nisar (950-FBAS/MScPHY/F18)}

Project title: “Electric modulus spectroscopy of (Zn)_x/CuTl-1223 nanoparticles superconductor composites”

11. Group (M.Sc. 2021)

{Mavia Anjum (1019-FBAS/MScPHY/F19), Syed M. Ali Shah (1039-FBAS/MScPHY/F19), M. Nouman (1094-FBAS/MScPHY/F19)}

Project title: “Complex Impedance Spectroscopy of (Zn)_x/CuTl-1223 Nanoparticles-Superconductor Composites”

12. Group (M.Sc. 2022)

{Haider Ali (1096-FBAS/MScPHY/S20), Mobin Ahmed (1099-FBAS/MScPHY/S20), Habib Ullah Tariq (1106-FBAS/MScPHY/S20)}

Project title: “Effect of Lithium Doping on Frequency Dependent Dielectric Properties of Manganese Ferrite Nanoparticles”

MS STUDENTS SUPERVISED AT DEPARTMENT OF PHYSICS, FBAS, IIUI

1. Zahir Usman (3-FBAS/MSPHS/F10)

Thesis title: “Dielectric properties of carbon nanotubes added CuTl-1223 superconductor”

2. Muhammad Kamran (12-FBAS/MSPHY/F10)

Thesis title: “Metallic oxide nanoparticles addition effects on dielectric properties on CuTl-1223 superconductor”

3. Asif Iqbal Bhatti (19-FBAS/MSPHY/F10)

Thesis title: “Fluctuation induced conductivity of nanoparticles added CuTl-1223 superconductor”

4. Muhammad Shahid (31-FBAS/MSPHY/F10)

Thesis title: “Dielectric and magnetic properties of CoZn-ferrite/SiO₂ nanocomposites”

5. Farrha Naeem (39-FBAS/MSPHY/F10)

Thesis title: “Synthesis and characterization of metal oxide nanoparticles/superconductor composites”

6. Muhammad Imran (46-FBAS/MSPHY/F10)

Thesis title: “Effects of thickness of ZnSe thin films on their physical properties”

7. Ghulam Hussain (111-FBAS/MSPHY/F12)

Thesis title: “Study of critical regime of (Ag)_x/CuTl-1223 nano-superconductor composites via excess conductivity analyses”

8. Munawar Zaman (112-FBAS/MSPHY/F12)

Thesis title: “Effect of Al₂O₃ nanoparticles in CuTl-based superconductor”

9. Abrar Ahmed Khan (117-FBAS/MSPHY/F12)

Thesis title: “Berezinskii-Kosterlitz-Thouless (BKT) Transition in K-doped Fe-based superconductor”

10. Jaffer Saddique (127-FBAS/MSPHY/F12)

Thesis title: “Synthesis and characterization of molybdenum oxide-based nanostructures”

11. Rafi Ullah (128-FBAS/MSPHY/F12)

Thesis title: “Optimization of Al-doped ZnO nanorods for photovoltaic applications”

12. Khalid Khan (154-FBAS/MSPHS/S13)

Thesis title: “Inter-grain coupling effect on superconductivity of (Zn)_x/CuTl-1223 nano-superconductor composites”

13. Mian Adnan Asghar (211-FBAS/MSPHS/F13)

Thesis title: “Localization effect on dielectric properties of (Ni)_x/CuTl-1223 nano-superconductor Composites”

14. Ibraheem (224-FBAS/MSPHY/F13)

Thesis title: “Inter-grain coupling effect on superconducting properties of CuTl-1223 matrix by the addition of zinc nanoparticles”

15. Khurram Shehzad (235-FBAS/MSPHY/F13)

Thesis title: “Structural and dielectric properties of (Al₂O₃)_x/CuTl-1223 nanoparticles-superconductor composites”

16. Irfan Ali (236-FBAS/MSPHY/F13)

Thesis title: “Role of Cu nanoparticles in CuTl-1223 superconductors”

17. Ghulam Abbas (238-FBAS/MSPHS/F13)

Thesis title: “Structural and dielectric properties of (Fe₂O₃)_x/CuTl-1223 nano-superconductor composites”

18. Iftikhar Ahmad (255-FBAS/MSPHY/S14)

Thesis title: “Effect of MgO nanoparticles on superconducting properties of CuTl-1223 phase”

19. Muhammad Waqas Rabbani (268-FBAS/MSPHY/S14)

Thesis title: “Infield response of (Ag)_x /CuTl-1223 nanoparticles superconductor composites”

20. Sajid Ali (270-FBAS/MSPHY/S14)

Thesis title: “Tuning of dielectric properties of CuTl-1223 matrix with cobalt (Co) nanoparticles”

21. Bilal Majeed (272-FBAS/MSPHY/S14)

Thesis title: “Investigation on critical regime and pseudo-gap of (Fe₂O₃)_x/CuTl-1223 nanoparticles-superconductor composites via excess conductivity”

22. **Muhammad Touqeer** (287-FBAS/MSPHY/F14)
Thesis title: “Frequency dependent dielectric properties of $(\text{MnFe}_2\text{O}_4)_x/\text{CuTl-1223}$ nanoparticles-superconductor composites”
23. **Ahmed Saleh Raja** (302-FABS/MSPHY/F14)
Thesis title: “Tuning of dielectric parameters of CuTl-1223 superconductor by varying chromium (Cr) nanoparticles contents”
24. **Rashid Khan** (307-FBAS/MSPHY/F14)
Thesis title: “Superconducting properties of $(\text{MnFe}_2\text{O}_4)_x/\text{CuTl1223}$ composites”
25. **Azhar Saeed** (310/FBAS-MSPHY/F-14)
Thesis title: “Theoretical analysis of excess conductivity in Cu-nanoparticles added CuTl-1223 superconductor”
26. **Muhammad Naveed** (335-FBAS/MSPHY/F15)
Thesis title: “Conduction Mechanism and Impedance Spectroscopy of $(\text{MnFe}_2\text{O}_4)_x/\text{CuTl-1223}$ Superconductor”
27. **Waqas Ahmad** (352-FBAS/MSPHY/F15)
Thesis title: “Infield superconducting properties of $(\text{Au})_x/\text{CuTl-1223}$ composites”
28. **Badash Amin** (366-FBAS/MSPHY/F15)
Thesis title: “Role of CoO Nanoparticles in Impedance of $\text{Cu}_{0.5}\text{Tl}_{0.5}\text{Ba}_2\text{Ca}_2\text{Cu}_3\text{O}_{10-\delta}$ Superconductor”
29. **Muhammad Imran** (369-FBAS/MSPHY/F15)
Thesis title: “Role of CoO nanoparticles in tuning the dielectric behavior of CuTl-1223 superconductor”
30. **Tanzeel Ul Rehman** (372-FBAS/MSPHY/F15)
Thesis title: “Reduction of Jahn-Teller Distortion by Replacing $\text{Cu } 3d^9$ with $\text{Zn } 3d^{10}$ at CuO_2 Planes of CuTl-1223 Superconductor”
31. **Mirza Hassan Baig** (420-FABS/MSPHY/S16)
Thesis title: “Temperature Dependent Magnetic Proprieties of $(\text{CoO})_x/(\text{CuTl-1223})$ Nanoparticles-Superconductor Composites”
32. **Muhammad Qasim** (392/FBAS-MSPHY/S-16)
Thesis title: “Comparative Impedance Response of Ferromagnetic (Co) and Anti-ferromagnetic (Cr) Nanoparticles Added CuTl-1223 Superconductor”
33. **Sheharyar Akhtar** (397-FBAS/MSPHY/S16)
Thesis title: “Temperature Dependent Dielectric Modulus of $(\text{MnFe}_2\text{O}_4)_x/\text{CuTl-1223}$ Nanoparticles-Superconductor Composites”
34. **Hassan Shabbir** (413-FBAS/MSPHY/S16)
Thesis title: “Infield Superconducting Properties of Mg-doped CuTl-1223 Phase”
35. **Ghazanfar Ghaffar** (499-FBAS/MSPHY/F17)
Thesis title: “Synthesis, Characterization and Activity of Al-doped Nickel Oxide Nanoparticles against Multidrug-Resistant Bacteria”
36. **Muhammad Amir Durrani** (498-FBAS/MSPHY/F17)
Thesis title: “Comparative Dielectric Response of Ferromagnetic (Co) and Anti-Ferromagnetic (Cr) Nanoparticles Added CuTl-1223 Superconductor”
37. **Hafiz Haris Ahmed Abbasi** (516-FBAS/MSPHY/F17)

Thesis title: “Electric Modulus Spectroscopy of (Ag)_x/CuTl-1223 Nanoparticles-Superconductor Composites”

38. Arshid Khan (540-FBAS/MSPHY/F18)

Thesis title: “Gold Nanoparticles Effect on Excess Conductivity of Cu_{0.5}Tl_{0.5}Ba₂Ca₂Cu₃O_{10-δ} Superconducting Phase”

39. Muhammad Khan (541-FBAS/MSPHY/F18)

Thesis Title: “Temperature Dependent Dielectric Response of Non-magnetic Zn Nanoparticles added CuTl-1223 Superconductor”

40. Muhammad Ali (544-FBAS/MSPHY/F18)

Thesis Title: “Synthesis and Electrochemical Properties of (GO)_x/(α-Fe₂O₃) Nanohybrids”

41. Tajammal Hussain (559-FBAS/MSPHY/F18)

Thesis Title: “Superconducting Properties of (Cr₂O₃)_y/CuTl-1223 Nanoparticles-Superconductor Composites”

42. Imran Khan (552-FBAS/MSPHY/F18)

Thesis title: “Infield Superconducting Properties of (Co₃O₄)_x/CuTl-1223 Nanoparticles-Superconductor Composites”

43. Zuhda Saeed (525-FBAS/MSPHY/F18)

Thesis title: “Synthesis and electrochemical properties of (MWCNTs)_x/MgFe₂O₄ nanohybrids”

44. Muhammad Mudassar Khan (597-FBAS/MSPHY/F19)

Thesis title: “Electrochemical properties of (MWCNTs)_x/LiFe₂O₄ nanohybrids”

45. Ghazanfar Mehmood (627-FBAS/MSPHY/F19)

Thesis title: “Ac-conduction properties of (rGO)_x/LiFe₂O₄ nanohybrids”

46. Bahar Hussain (629-FBAS/MSPHY/F19)

Thesis title: “Study of (GO)_x/α-Fe₂O₃ composites for energy storage applications”

47. Habib Ullah Tariq (677-FBAS/MSPHY/F22)

Thesis title: “Role of Carbon Derivatives (rGO and MWCNTs) in Energy Storage Characteristics of ZnFe₂O₄ nanoparticles”

MS STUDENTS Co-SUPERVISED AT DEPARTMENT OF PHYSICS, FBAS, HUI

1. Faisal Jabber (18-FBAS/MSPHY/F10)

Thesis title: “Effects of irradiation of heavy ions on ZnSe thin films on their physical properties”

2. Sumayyah Naeem (41-FBAS/MSPHY/F10)

Thesis title: “Synthesis and characterization of ferrite nanoparticles/superconductor composites”

3. Faisal Zeb (53-FBAS/MSPHY/F10)

Thesis title: “Synthesis and characterization of Co-ferrite/SiO₂ nanocomposites”

4. Adnan Razaq Qureshi (116-FBAS/MSPHY/F12)

Thesis title: “Temperature dependent magnetic properties of uncoated and coated cobalt ferrite nanoparticles”

5. Shahid Ahmed Khan (124-FBAS/MSPHY/F12)

Thesis title: “Study of cobalt ferrite nanoparticles/CuTl-based superconductor composites”

6. Muhammad Sohail (497-FBAS/MSPHY/F17)

Thesis title: “Frequency Dependent Dielectric Response of $(Ag)_x/(Cu_{0.5}Tl_{0.5})Ba_2Ca_2Cu_3O_{10-\delta}$ Nanoparticles Superconductor Composites”

MS STUDENTS SUPERVISED AT DEPARTMENT OF MECHANICAL ENGINEERING, FET, IUI

1. Muhammad Mujahid (37-FET/MSME/F15)

Thesis title: “Synthesis of Cobalt Doped Nickel Ferrites Nanoparticles and Decorated with MWCNTs to Form Nanohybrid as Anode for Lithium-Ion Batteries”

MS STUDENTS Co-SUPERVISED AT DEPARTMENT OF ENVIRONMENTAL SCIENCE, FBAS, IUI

1. Imran Khan (263-FBAS/MSES/F15)

Thesis title: “Removal of Chromium from Water using Graphene Oxide Nanoparticles”

MS STUDENTS SUPERVISED AT DEPARTMENT OF PHYSICS, AIU, ISLAMABAD

1. Muhammad Arshad (AN710956) (Department of Physics, Allama Iqbal Open University, Islamabad, Pakistan)

Thesis title: “Fluctuation Induced Conductivity (FIC) analysis of Al_2O_3 nano-particles/ $CuTl-1223$ superconductor composites”

2. Muhammad Tariq Saeed (AS751895) (Department of Physics, Allama Iqbal Open University, Islamabad, Pakistan)

Thesis title: “Synthesis and dielectric properties of magnesium-oxide nanoparticles”

3. Mehrosh Fatima (Roll No. BN721790) (Department of Physics, Allama Iqbal Open University, Islamabad, Pakistan)

Thesis title: “Comparative Electric Modulus Spectroscopic Study of Ferromagnetic (Co) and Anti-Ferromagnetic (Cr) Nanoparticles Added $CuTl-1223$ Superconducting Phase”

MS STUDENTS Co-SUPERVISED AT DEPARTMENT OF PHYSICS FUU, ISLAMABAD

1. Abdul Rehman (7888APY/MPHILPHY/AUT-12) (Department of Physics, Federal Urdu University of Arts, Science and Technology, Islamabad, Pakistan)

Thesis title: “Fluctuation Induced Conductivity (FIC) analysis of $(CoFe_2O_4)_x/CuTl-1223$ nano-superconductor composites”

2. Muhammad Siddique (409APY/MPHILPHY/AUT-12) (Department of Physics, Federal Urdu University of Arts, Science and Technology, Islamabad, Pakistan)

Thesis title: “Excess conductivity analysis of nano-Au added $CuTl-1223$ superconducting matrix”

MS STUDENTS Co-SUPERVISED AT DEPARTMENT OF PHYSICS, RIPHAH INTERNATIONAL UNIVERSITY, ISLAMABAD

1. Muhammad Raza Hussain (CMS 13327)

Thesis title: “The Structural and Superconducting Properties of Diamond Nanoparticles added $CuTl-1223$ Phase”

2. **Muhammad Saqib** (CMS 12806)
Thesis title: "Tuning of dielectric parameters by varying Diamond Nanoparticles contents in CuTl-1223 superconducting matrix"
3. **Nazir Hussaion** (CMS 16988)
Thesis title: "Pressure effects on transport properties of (Ag)_x/CuTl-1223 nanoparticles-superconductor composites"
4. **Yaseen Muhammad** (CMS 17056)
Thesis title: "Comparative study of ambient and high pressure synthesized (Cu)_x/CuTl-1223 nanoparticles-superconductor composites"

PHD STUDENTS SUPERVISED IN AT DEPARTMENT OF PHYSICS, FBAS, IIUI

1. **Abdul Jabbar** (01-FBAS/PhDPHY/S10)
Thesis Title: "Synthesis and characterization of metal-oxide nanoparticles added CuTl-based superconductor"
2. **Irfan Qasim** (10-FBAS/PhDPHY/S11)
Thesis Title: "Structural and superconducting properties of CuTl-12(n-1)n; n = 3, 4 nanostructures composites"
3. **Muhammad Waqee-ur-Rehman** (12-FBAS/PhDPHY/F11)
Thesis Title: "Infield superconducting transport properties of magnetic nanostructures-CuTl-1223 composites."
4. **Liaqat Ali** (37-FBAS/PhDPHY/F-14)
Thesis Title: "Metallic nanoparticles effects on physical properties of CuTl-1223 superconductor"
5. **Mubasher** (81-FBAS/PhDPHY/F-16)
Thesis Title: (MWCNTs)_x/Spinal Ferrites Nanohybrids: High Performance Anode Materials for Lithium-Ion Battery
6. **Abrar Ahmed Khan** (50-FBAS/PhDPHY/F-15)
Thesis Title: "Impedance Spectroscopy of Metallic Nanoparticles Added CuTl-based Superconductor"

PHD STUDENTS Co-SUPERVISED IN AT DEPARTMENT OF PHYSICS, FBAS, IIUI

1. **Muhammad Kamran** (22-FBAS/PhDPHY/S13)
Thesis Title: "Study of structural, magnetic and dielectric properties of ferrite /chromite nanoparticles."

BS STUDENTS RESEARCH PROJECTS UNDER SUPERVISION AT DEPARTMENT OF PHYSICS, FBAS, IIUI

1. **Group (BS 2025)**
{**Irtaza Fatima** (2223-FBAS/BSPHY/F21), **Tansiba Nasir** (2165-FBAS/BSPHY/F21), **Hira Muneer** (2174-FBAS/BSPHY/F21)}
Project title: "Nano-synergy: Bismuth Ferrite Nanoflakes and Carbon Derivatives for Future Supercapacitors"

MS STUDENTS UNDER SUPERVISION AT DEPARTMENT OF PHYSICS, FBAS, IIUI

1. **Shahid Ur Rehman** (715-FOS/MSPHY/F23)

Thesis Title: Influence of rGOs and MWCNTs on supercapacitive properties of magnesium ferrite nanoparticles

2. **Abdul Sammad** (720-FOS/MSPHY/F23)

Thesis Title: Hybridization of lithium ferrites nanoparticles with rGOs and MWCNTs for energy storage device of supercapacitor

Ph. D STUDENTS UNDER SUPERVISION AT DEPARTMENT OF PHYSICS, FBAS, IIUI

1. **Miraj Ud Din** (115-FBAS/PHDPHY/F20)

Thesis Title: Design and Numerical Investigations of $[\text{CH}_3\text{NH}_3/\text{CH}(\text{NH}_2)_2\text{XY}_3]$; $\text{X}=\text{Ge}, \text{Sn}$ and $\text{Y}=\text{I}, \text{Br}, \text{Cl}$] Organo-Metal Halide Perovskite Solar Cells

2. **Gohar Farooq** (119-FBAS/PHDPHY/F21)

Thesis Title: Computational Investigations to Explore the Role of Double Perovskite $[\text{Cs}_2\text{XY}_6]$: ($\text{X}=\text{Ag}, \text{Cu}, \text{Ge}, \text{Sn}, \text{Bi}, \text{Ti}$) and ($\text{Y}=\text{Cl}, \text{Br}, \text{I}, \text{F}$) in Solar Cells

3. **M. Sohail** (134-FOS/PHDPHY/F23)

Thesis Title: Composites of Double Perovskites $\text{Cs}_2\text{AgB}'\text{X}_6$; ($\text{B}'=\text{Bi}, \text{Sb}, \text{In}$ and $\text{X}=\text{Cl}, \text{Br}$) and Reduced Graphene Oxide Nanostructures: A Path to Explore New Materials for Energy Storage Applications

RESEARCH GRANTS SECURED

1. **PROJECT-1**: “Synthesis and characterization of nanoparticles/superconductor composites” Rs. 500,000/=
2. **PROJECT-2**: “Study of magnetic nanostructure-CuTi-1223 superconductor composites” IIUI project amounting Rs. 490,000/=.
3. **PROJECT-3**: “Combination Analysis of Natural Phenolics and Palladium Nanoparticles Targeting Histone Deacetylases (HDACs): An Attractive Combinatorial Therapy for Breast Cancer Cells” NRP of HEC Pakistan amounting Rs.1591747/=.

HONORS AND AWARDS

- University Merit scholarship in M. Phil.
- University Merit scholarship in Ph. D.
- International Young Scientist Fellow (Post Doc) Award at Institute of Physics (IOP) Chinese Academy of Sciences (CAS) Beijing, R. China
- Research Productivity Award by the Pakistan Council for Science and Technology every year since 2009. Pakistan Council for Science & Technology (PCST) grants Research Productivity Award to active scientists on the basis of their publications in International Journals and their performance as evaluated empirically by Journal Impact Factors, Citations and Peer Review.
- Best University Teacher Award and Gold Medal for year 2017 from IIU Islamabad, Pakistan.
- Visiting Scientist at Center for Nanoscience (William Clay building), Department of Physics and Astronomy, University of Missouri St. Louis, USA.

SKILLS

- Strong knowledge and research experience in high T_c superconductivity in bulk form as well as in thin films and superconductor/nanostructures composites.
- Strong background of Physics especially related to transport phenomena in different materials.
- Familiar with XRD, XPS, FT-IR, SEM, TEM, AFM, Raman Spectroscopy techniques etc.
- Excellent writing and communication skills.

REFERENCES

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LIST OF INTERNATIONAL PUBLICATIONS

(Total Impact Factor = 508.457)

(Q1 = 69, Q2 = 54, Q3 = 24, and Q4 = 7)

1. Nawazish A. Khan, **M. Mumtaz**, K. Sabeeh, M. I. A. Khan, and. Mushtaq Ahmad, “The study of phonon modes of $\text{Cu}_{1-x}\text{Tl}_x\text{Ba}_2\text{Ca}_3\text{Cu}_4\text{O}_{12-y}$ superconductor thin films by FTIR absorption spectroscopy”, Physica C **407** (2004) 103-114. (I. F. = 1.534). W 0921-4534 (Q2)
2. Nawazish A. Khan, and **M. Mumtaz**, “A New $\text{Cu}_{0.5}\text{Tl}_{0.5}\text{Ba}_2\text{Ca}_2\text{Cu}_{3-y}\text{Zn}_y\text{O}_{10-\delta}$ high-temperature superconductor with three ZnO_2 planes”, Supercond. Sci. Technol. **19** (2006) 762-766. (I. F. = 3.482). W 0953-2048,1361-6668 (Q1)
3. Nawazish A. Khan, **M. Mumtaz**, M. M. Ahadian, and Azam Irajizad, “X-ray photo-emission studies of $\text{Cu}_{1-x}\text{Tl}_x\text{Ba}_2\text{Ca}_3\text{Cu}_4\text{O}_{12-y}$ superconductor thin films”, Physica C **449** (2006) 47-52. (I. F. = 1.534). W 0921-4534 (Q2)
4. Nawazish A. Khan, **M. Mumtaz**, M. M. Ahadian, and Azam Irajizad, “X-ray photoemission studies of Zn doped $\text{Cu}_{1-x}\text{Tl}_x\text{Ba}_2\text{Ca}_3\text{Cu}_{3-y}\text{Zn}_y\text{O}_{10-\delta}$ ($y = 0, 2.65$) superconductors”, Physica C **453** (2007) 46-51. (I. F. = 1.534). W 0921-4534 (Q2)
5. Nawazish A. Khan, and **M. Mumtaz**, “Absence of pair breaking effect in $\text{Cu}_{0.5}\text{Tl}_{0.5}\text{Ba}_2\text{Ca}_2\text{Cu}_{3-y}\text{Zn}_y\text{O}_{10-\delta}$ ($y=0, 0.75, 1.5, 2.25, 2.5, 2.65$) superconductor”, Eur. Phys. J. Appl. Phys. **38** (2007) 47-51. (I. F. = 1.168). (Q3)
6. A. A. Khurram, **M. Mumtaz**, Nawazish A. Khan, M. M. Ahadian, and Azam Irajizad, “The effect of grain size on the fluctuation-induced conductivity of $\text{Cu}_{1-x}\text{Tl}_x\text{Ba}_2\text{Ca}_3\text{Cu}_4\text{O}_{12-y}$ superconductor thin films”, Supercond. Sci. Technol. **20** (2007) 742-747. (I. F. = 3.842). W 0953-2048,1361-6668 (Q1)

7. Nawazish A. Khan, and **M. Mumtaz**, “ $\text{Cu}_{0.5}\text{Tl}_{0.5}\text{Ba}_2\text{Ca}_3\text{Cu}_{4-y}\text{Zn}_y\text{O}_{12-\delta}$ ($y=0, 1.0, 2.0, 3.0, 3.5$): Superconductor with four ZnO_2 planes”, J. Low Temp. Phys. **149** (2007) 97-103. [\(I. F. = 1.618\)](#). [X 1573-7357 \(Q2\)](#)
8. **M. Mumtaz**, and Nawazish A. Khan, “Intergranular coupling of the $\text{Cu}_{0.5}\text{Tl}_{0.5}\text{Ba}_2\text{Ca}_2\text{Cu}_{0.5}\text{Zn}_{2.5}\text{O}_{10-\delta}$ superconductor”, Supercond. Sci. Technol. **20** (2007) 1228-1232. [\(I. F. = 3.842\)](#). [W 0953-2048,1361-6668 \(Q1\)](#)
9. Nawazish A. Khan, and **M. Mumtaz**, “Enhanced superconductivity by Mg doping in $\text{Cu}_{1-x}\text{Tl}_x\text{Ba}_2\text{Ca}_{2-y}\text{Mg}_y\text{Cu}_{0.5}\text{Zn}_{2.5}\text{O}_{10-\delta}$ ”, Mater. Lett. **62** (2008) 659-662. [\(I. F. = 3.574\)](#). [W 0167-577X \(Q1\)](#)
10. Nawazish A. Khan, **M. Mumtaz**, and A. A. Khurram, “AC-susceptibility measurements of $\text{Cu}_{1-x}\text{Tl}_x\text{Ba}_2\text{Ca}_3\text{Cu}_4\text{O}_{12-y}$ superconductor thin films with different thallium content”, Physica C **468** (2008) 233–236. [\(I. F. = 1.534\)](#). [W 0921-4534 \(Q2\)](#)
11. Nawazish A. Khan, and **M. Mumtaz**, “How Grain-Boundaries Influence the Intergranular Critical Current Density of $\text{Cu}_{1-x}\text{Tl}_x\text{Ba}_2\text{Ca}_3\text{Cu}_4\text{O}_{12-\delta}$ Superconductor Thin Films?”, J. Low Temp. Phys. **151** (2008) 1221-1229. [\(I. F. = 1.618\)](#). [X 1573-7357 \(Q2\)](#)
12. Nawazish A. Khan, and **M. Mumtaz**, “Absence of pair-breaking mechanism in $\text{Cu}_{0.5}\text{Tl}_{0.5}\text{Ba}_2\text{Ca}_3\text{Cu}_{0.5}\text{Zn}_{3.5}\text{O}_{12-\delta}$ ”, Phys. Rev. B **77** (2008) 054507. [\(I. F. = 3.908\)](#). [W 2469-9950 \(Q1\)](#)
13. **M. Mumtaz**, and Nawazish A. Khan, “Studies of phonon modes and superconducting properties of $\text{Cu}_{0.5}\text{Tl}_{0.5}\text{Ba}_2\text{Ca}_3\text{Cu}_{4-y}\text{Zn}_y\text{O}_{12-\delta}$ ($y=0, 1.5, 2.5$)”, Supercond. Sci. Technol. **21** (2008) 065015. [\(I. F. = 3.482\)](#). [W 0953-2048,1361-6668 \(Q1\)](#)
14. **M. Mumtaz**, and Nawazish A. Khan, “Improved interplane and intergranular coupling by Mg doping at Ca site in $\text{Cu}_{0.5}\text{Tl}_{0.5}\text{Ba}_2\text{Ca}_2(\text{Cu}_{0.5}\text{Zn}_{2.5})\text{O}_{10-\delta}$ superconductor”, J. Appl. Phys. **103** (2008) 083913. [\(I. F. = 2.877\)](#). [W 1089-7550 \(Q1\)](#)
15. **M. Mumtaz**, Nawazish A. Khan, and A. A. Khurram, “Enhanced superconducting properties of $\text{Cu}_{0.5}(\text{Tl}_{0.5-y}\text{Hg}_y)\text{Ba}_2\text{Ca}_3\text{Cu}_4\text{O}_{12-\delta}$ ($y=0, 0.15, 0.25, 0.35$) superconductor”, J. Alloys Compd. **452** (2008) 435-455. [\(I. F. = 6.371\)](#). [W 0925-8388 \(Q1\)](#)
16. **M. Mumtaz**, and A. A. Khurram, “Inter-grain connectivity in $\text{Cu}_{0.5}(\text{Tl}_{0.5-y}\text{Hg}_y)\text{Ba}_2\text{Ca}_3\text{Cu}_4\text{O}_{12-\delta}$ superconductor”, J. Alloys Compd. **463** (2008) 591-595. [\(I. F. = 6.371\)](#). [W 0925-8388 \(Q1\)](#)
17. Nawazish A. Khan, Faheem Ashraf, **M. Mumtaz**, and Naghma Haider, “Self-doping Effects on the Superconducting Properties of $\text{Cu}_{0.5}\text{Tl}_{0.25}\text{M}_{0.25}\text{Ba}_2\text{Ca}_2\text{Cu}_3\text{O}_{10-\delta}$ ($M = \text{Bi, Hg, Nb, Pd, Li, Na, K}$)”, J. Supercond. Nov. Magn. **21** (2008) 279-287. [\(I. F. = 1.675\)](#). [X 1557-1947 \(Q3\)](#)
18. Nawazish A. Khan, **M. Mumtaz**, and A. A. Khurram, “Frequency dependent dielectric properties of $\text{Cu}_{0.5}\text{Tl}_{0.5}\text{Ba}_2\text{Ca}_2(\text{Cu}_{3-y}\text{Zn}_y)\text{O}_{10-\delta}$ ($y=0, 1.0, 1.5, 2.0, 2.5$) superconductors”, J. Appl. Phys. **104** (2008) 033916. [\(I. F. = 2.877\)](#). [W 1089-7550 \(Q1\)](#)
19. **M. Mumtaz**, and Nawazish A. Khan, “Dielectric response of $\text{Cu}_{0.5}\text{Tl}_{0.5}\text{Ba}_2(\text{Ca}_{2-y}\text{Mg}_y)(\text{Cu}_{0.5}\text{Zn}_{2.5})\text{O}_{10-\delta}$ bulk superconductor to frequency and temperature”, Physica C **469** (2009) 182-187. [\(I. F. = 1.534\)](#). [W 0921-4534 \(Q2\)](#)
20. A. A. Khurram, Nawazish A. Khan, and **M. Mumtaz**, “Intercomparison of Fluctuation Induced Conductivity of $\text{Cu}_{0.5}\text{Tl}_{0.5}\text{Ba}_2\text{Ca}_{n-1}\text{Cu}_n\text{O}_{2n+4-y}$ ($n=2, 3, 4$) superconductor thin films”, Physica C **469** (2009) 279-282. [\(I. F. = 1.534\)](#). [W 0921-4534 \(Q2\)](#)
21. **M. Mumtaz**, and Nawazish A. Khan, “Dielectric properties of $\text{Cu}_{0.5}\text{Tl}_{0.5}\text{Ba}_2\text{Ca}_3\text{Cu}_4\text{O}_{12-\delta}$ bulk superconductors”, Physica C **469** (2009) 728-731. [\(I. F. = 1.534\)](#). [W 0921-4534 \(Q2\)](#)

22. **M. Mumtaz**, and Nawazish A. Khan, “Reduced anti-ferromagnetism promoted by Zn 3d¹⁰ substitution at CuO₂ planar sites of Cu_{0.5}Tl_{0.5}Ba₂Ca₃Cu₄O_{12-δ} superconductors”, Physica B: Condensed Matter **404** (2009) 3973-3977. (**I. F. = 2.988**). **W 0921-4526 (Q2)**
23. **M. Mumtaz**, and Nawazish A. Khan, “Improvement of superconductivity with the reduced anti-ferromagnetism in Zn-doped CuTl-1223 superconductors”, Phys. Scr. **80** (2009) 025702. (**I. F. = 3.081**). **W 0031-8949 (Q2)**
24. **M. Mumtaz**, and Nawazish A. Khan, “Homogeneous distribution of carriers in the conducting planes by Zn substitution at Cu sites in Cu_{0.5}Tl_{0.5}Ba₂Ca₃Cu₄O_{12-δ} superconductors”, Low Temperature Physics/Fizika Nizkikh Temperature, **36** (2010) 196-201. (**I. F. = 0.923**). **X 1063-777X / Y 0132-6414 (Q4)**
25. **M. Mumtaz**, Nawazish A. Khan, and R. Nawaz, “Superconductivity and electron-phonon interaction in Cu_{0.5}Tl_{0.5}Ba₂Ca₂Cu_{3-y}MyO_{10-δ} (M=0, Si, Ge, Sn, y=0, 1)”, J. Supercond. Nov. Mag. **23** (2010) 565-569. (**I. F. = 1.675**). **X 1557-1947 (Q3)**
26. **M. Mumtaz**, Nawazish A. Khan and E. U. Khan, “Growth of Cu_{0.5}Tl_{0.5}Ba₂Ca₃Cu_{4-y}ZnyO_{12-δ} (y=0, 1, 1.5, 2, 2.5) superconductor with optimum carriers”, Physica C **470** (2010) 428- 434. (**I. F. = 1.534**). **W 0921-4534 (Q2)**
27. **M. Mumtaz**, Nawazish A. Khan and Sajid Khan, “Optimization of carriers by self-doping in Cu_{0.5}Tl_{0.5}Ba₂Ca₂Cu_{3-y}MyO_{10-δ} superconductor”, J. Appl. Phys, **107** (2010) 103905. (**I. F. = 2.877**). **W 1089-7550 (Q1)**
28. Nawazish A. Khan, **M. Mumtaz**, Anayat Ullah, Najmul Hassan and A. A. Khurram, “Suppression of T_c in Co-doped Cu_{0.5}Tl_{0.5}Ba₂Ca₂Cu_{3-x}Co_xO_{10-δ} superconductor”, J. Alloys Compd. **507** (2010) 142-145. (**I. F. = 6.371**). **W 0925-8388 (Q1)**
29. **M. Mumtaz**, Nawazish A. Khan and Faheem Ashraf, “Enhanced superconductivity in (Cu_{0.5}Tl_{0.25}M_{0.25})Ba₂Ca₂Cu₃O_{10-δ} samples”, J. Supercond. Nov. Magn. **24** (2011) 1547-1551. (**I. F. = 1.675**). **X 1557-1947 (Q3)**
30. S. M. Hasnain, **M. Mumtaz** and Nawazish A. Khan, “Optimum Synthesis Temperature of (Cu_{1-x}Tl_x)Ba₂Ca₃Cu₄O_{12-δ} Superconductor”, J. Supercond. Nov. Magn. **24** (2011) 1653-1657. (**I. F. = 1.675**). **X 1557-1947 (Q3)**
31. **M. Mumtaz**, Nawazish A. Khan and Anayat Ullah, “Superconductivity in Co and Li substituted Cu_{0.5}Tl_{0.5}Ba₂Ca₂Cu_{3-x}Co_xO_{10-δ}”, J. Low. Temp. Phys. **163** (2011) 203-213. (**I. F. = 1.618**). **X 1573-7357 (Q2)**
32. **M. Mumtaz**, S. M. Hasnain, A. A. Khurram and Nawazish A. Khan, “Fluctuation induced conductivity in (Cu_{0.5}Tl_{0.5-x}K_x)Ba₂Ca₃Cu₄O_{12-δ} superconductor”, J. Appl. Phys, **109** (2011) 023906. (**I. F. = 2.877**). **W 1089-7550 (Q1)**
33. **M. Mumtaz**, Nawazish A. Khan, S. M. Hasnain and Adnan Younis, “Role of Mobile Charge Carriers and Fluctuation Induced Conductivity in (Cu_{0.5}Tl_{0.5-x}K_x)Ba₂Ca₃Cu₁Zn₃O_{12-δ} Superconductor”, J. Supercond. Nov. Magn. **24** (2011) 1939-1945. (**I. F. = 1.675**). **X 1557-1947 (Q3)**
34. **M. Mumtaz**, Nawazish A. Khan, Faheem Ashraf, “Improvement of Superconductivity with the Modification of Charge Reservoir Layer in (Cu_{0.5}Tl_{0.5-x}M_x)Ba₂Ca₂Cu₃O_{10-δ}” J. Supercond. Nov. Magn. **24** (2011) 1985-1989. (**I. F. = 1.675**). **X 1557-1947 (Q3)**

35. **M. Mumtaz**, S. M. Hasnain, and Nawazish A. Khan, "Fluctuation induced conductivity in Hg-doped $(\text{Cu}_{0.5}\text{Tl}_{0.5-x}\text{Hg}_x)\text{Ba}_2\text{Ca}_3\text{Cu}_4\text{O}_{12-\delta}$ superconductor" J. Supercond. Nov. Magn. **25** (2012) 201-207. (I. F. = 1.675). X 1557-1947 (Q3)
36. S. M. Hasnain, **M. Mumtaz**, and Nawazish A. Khan, "Comparison of superconductivity parameters of $(\text{Cu}_{1-x}\text{Tl}_x)\text{Ba}_2\text{Ca}_4\text{Cu}_5\text{O}_{14-\delta}$ superconductor synthesized at different temperatures" J. Supercond. Nov. Magn. **25** (2012) 325-329. (I. F. = 1.675). X 1557-1947 (Q3)
37. S. M. Hasnain, **M. Mumtaz**, and Nawazish A. Khan, "Fluctuation induced conductivity in $(\text{Cu}_{1-x}\text{Tl}_x)\text{Ba}_2\text{Ca}_2\text{Cu}_3\text{O}_{10-\delta}$ superconductor" J. Low. Temp. Phys. **167** (2012) 74-82. (I. F. = 1.618). X 1573-7357 (Q2)
38. **M. Mumtaz**, Nawazish A. Khan, and Sajid Khan, "Frequency dependent dielectric properties of $\text{Cu}_{0.5}\text{Tl}_{0.5}\text{Ba}_2\text{Ca}_2(\text{Cu}_{3-y}\text{M}_y)\text{O}_{10-\delta}$ superconductor" J. Appl. Phys. **111** (2012) 013920. (I. F. = 2.877). W 1089-7550 (Q1)
39. **M. Mumtaz**, Nawazish A. Khan, and S. M. Hasnain, "Growth of $(\text{Cu}_{0.5}\text{Tl}_{0.5-x}\text{Hg}_x)\text{Ba}_2\text{Ca}_3\text{Cu}_4\text{O}_{12-\delta}$ superconductor with optimum carriers density in CuO_2 planes and fluctuation induced conductivity" J. Supercond. Nov. Magn. **25** (2012) 835-840. (I. F. = 1.675). X 1557-1947 (Q3)
40. Nawazish A. Khan, M. Rahim, and **M. Mumtaz**, "Critical regime and suppression of the pseudogap in $\text{Cu}_{0.5}\text{Tl}_{0.5}\text{Ba}_2\text{Ca}_3\text{Cu}_{4-y}\text{Zn}_y\text{O}_{12-\delta}$ superconductor via excess conductivity analysis" Physica C **478** (2012) 32-37. (I. F. = 1.534). W 0921-4534 (Q2)
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1. 3rd International Scientific Spring-2011, National Center for Physics (NCP) Islamabad, Pakistan, 2011.
2. National University of Science and Technology (NUST) Conference on Applications and Methods of Physics, NUST Islamabad, Pakistan, 2011.
3. Pakistan Nuclear Regulatory Authority (PNRA) Seminar at Department of Physics IIU Islamabad, Pakistan, 2011.
4. 4th International Scientific Spring-2012, National Center for Physics (NCP), Islamabad, Pakistan, 2012.
5. PAK-CHINA Business Forum, Pak-China Friendship center Islamabad, COMSATES Institute of Information Technology, Islamabad, Pakistan, 2012.

6. International Symposium on Frontier of Superconductivity Research (II) ARPES on Unconventional Superconductors, National Lab for Superconductivity Institute of Physics Chinese Academy of Sciences Beijing 100190, China, 2012.
7. 10th International Bhurban Conference on Applied Sciences & Technology (10th IBCAST-2013), National Center for Physics (NCP), Islamabad, Pakistan.
8. 4th International Advances in Applied Physics and Materials Science Congress and Exhibition (APMAS2014) on 24 to 27 April 2014 in Fethiye-Mugla, Turkey 2014.
9. 3rd International Congress on Energy Efficiency and Energy Related Materials (ENEFM-2015) on 19 to 23 October 2015 in Fethiye-Mugla, Turkey 2015.
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