

UMT | SSC
School of Science

**UMT 2nd International
Conference on Emerging
Trends in Physics
(ICP-2025)**

*Renewable Energy Sources
and Climate Change
Mitigation*



**8th UMT International
Conference on Pure and
Applied Mathematics
(8th UICPAM 2025)**

*Bridging Theory and Applications:
Advancing Frontiers in Pure
and Applied Mathematics*

14-15 April 2025

Jointly Organized by:
Department of Physics & Department
of Mathematics, School of Science,
UMT, Lahore, Pakistan

QS **WORLD
UNIVERSITY
RANKINGS**
BY SUBJECT 2025
Mathematics **501-600**



Conference Patrons



Prof. Dr. Asif Raza S.I. H.I.
Rector, UMT

Chief Organizer



Prof. Dr. Sammia Shahid
Dean SSC

Conference Convener



Dr. Muhammad Imran Jamil
Associate Dean SSC

Conference Chair



Dr. Tanvir Hussain
Chairperson, Department of Physics

Conference Secretary



Dr. Qayyum Zafar
Associate Professor, Department of Physics



Member Organizing Committee

- Prof. Dr. M.A.K. Lodhi
- Prof. Dr. Arshad Majid Mirza
- Dr. Zaheer Hussain Shah
- Dr. Qurat ul Ain
- Dr. Muhammad Tahir
- Dr. Sidra Khalid
- Dr. Saira Shaheen
- Dr. Shamsa Kanwal
- Ms. Sidra Ashraf
- Ms. Hira Yaseen
- Ms. Hudabia Murtaza
- Mr. Syed Nasrullah Ali Qazi
- Ms. Rabia Nasar
- Mr. Muhammad Anas Toheed
- Mr. Joun Ali Faraz
- Mr. Qurban Ali
- Mr. Muhammad Bilal
- Mr. Imtiaz Ali
- Mr. Ahmad Raza
- Mr. Ayaz Islam
- Mr. Khurram Iftikhar
- Ms. Laiba Iqbal
- Ms. Areej Fatima
- Mr. Abdul Rehman
- Mr. Usman Saleem
- Mr. Adil Shehzad

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UMT

TECHNICAL SESSIONS

(Day – 1)



Day 1 (April, 14 2025)		
Time (GMT+5)	INAUGURAL SESSION (Venue: Hakim Saeed Hall)	Resource Person
9:00-9:40	Opening of Registration Desk	Dr. Saba Mehmood
9:40- 9:50	Guests to be Seated	
9:50-9:55	Recitation from the Holy Quran	
9:55-10:00	National Anthem	
10:00-10:30	Keynote Address Prof. Dr. Muhammad Jabir Khan (NTU, China) Title: “An Infrared and visible Image Fusion Using Knowledge Measure for intuitionistic Fuzzy sets and Swen Transformer.”	
10:30-11:00	Keynote Address Dr. Zubair Ahmad (QU, Qatar) Title: “Shaping Future Leaders: The Role of STEM Education in Climate Change Mitigation.”	
11:00-11:05	Welcome & Introduction: Prof. Dr. Sammia Shahid, Dean, School of Science, University of Management and Technology, Lahore, Pakistan.	
11:05 - 11:15	Address By the Prof. Dr. Asif Raza Rector University of Management and Technology, Lahore, Pakistan.	
11:15 - 11:20	Address By the Guest of Honor Dr. Syed Mansoor Sarwar Vice Chancellor Qarshi University, Lahore, Pakistan.	
11:20 - 11:30	Address By the Guest of Honor Dr. Reza Abdolmaleki Non-Resident Researcher, Institute for Research in Fundamental Sciences, Tehran Iran.	
11:30-11:40	Address By the Chief Guest Dr. Muhammad Ali Vice Chancellor University of The Punjab, Lahore, Pakistan.	
11:40 - 11:45	Souvenir Distribution	
11:45	Group Photo	
11:45-12:15	Tea /Coffee Break	



Day 1 (April, 14 2025)

TECHNICAL SESSION-1

(Venue: Hakim Saeed Hall)

Session Chair: Prof. Dr. Bilal Masud

Co-Chair: Prof. Dr. Arshad Majid Mirza

Time (GMT+5)	Plenary Address	Speaker
12:20-12:50	Deformed Regular Bardeen Black Hole Solutions in Rastall Theory.	Prof. Dr. Muhammad Sharif (PU, PAK)
12:50- 13:15	Magnetic Systems, Quantum Field Theory, and the Emergence.	Prof. Dr. Bilal Masud (PU, PAK)
13:15-13:30	Smart Procurement: Enhancing Project Utilization with Sustainable Practices	Dr. Faheem (Saqib Sultan Group)
13:30-14:30	Lunch Break	



Day 1 (April, 14 2025)

TECHNICAL SESSION-2A (Venue: Hakim Saeed Hall)			TECHNICAL SESSION-2B (Venue: Saleem Asghar Hall)	
Session Chair: Prof. Dr. Muhammad Sharif Co-Chair: Dr. Tabassum Rashid			Session Chair: Prof. Dr. Muhammad Abbas Co-Chair: Dr. Imran Asjad	
Time (GMT+5)	Plenary Address	Speaker	Plenary Address	Speaker
14:30-14:50	Asymptotic Behavior of the Saturation Number of Monomial Ideals	Dr. Reza Abdol maleki (IRF, IR)	Rotating Black Holes: Understanding Their Shadows and Visual Features	Dr. Muhammad Zubair (CIIT, PAK)
14:50-15:10	Existence of the solution of fixed-point operator equations using degree theory	Prof. Dr. Mujahid Abbas (Uj, SA)	Probing the Mysteries of Black Bounces: Light, Shadows, and Beyond	Dr Sehrish Iftikhar (LCWU, PAK)
15:10-15:30	Plasma Parameters in a Multicascade Liner Staged Pinch Device with Finite- β Effect	Prof. Dr. Arshad Majid Mirza (UMT, PAK)	On Roman Domination Number of some Graphs	Dr. Faisal Nadeem(CIIT, PAK)
15:30-16:00	Spectral Characterization of Graphs and Digraphs	Dr. Uzma Ahmad (PU, PAK)	Neural Network Models Based on Fuzzy Sets	Prof. Dr. Muhammad Akram (PU,PAK)
16:00	Tea / Coffee Break			



Day 1 (April, 14 2025)

TECHNICAL SESSION-2C

(Venue: 1C-14)

Chair: Dr. Bilal Masud | **Co-Chair:** Dr. Muhammad Imran Jamil

Time (GMT+5)	Tittle	Speaker
14:30-15:00	Emerging Trends in Physics	Prof. Dr. Arfin Khan Lodhi (UMT, PAK)
15:00-15:30	Five Extremal Acyclic Graphs w.r.t Sombor Indices	Dr Salma Kanwal (LCWU, PAK)
15:30-16:00	Thermal Effects of Ternary Casson Nanofluid Flow Over a Stretching Sheet: An Investigation Of Thomson And Troian Velocity Slip	Dr. Musharafa Saleem (UMT, PAK)
16:00	Tea / Coffee Break	



Day 1 (April, 14 2025)

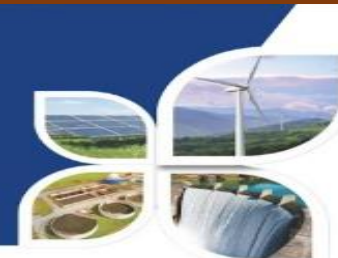
TECHNICAL SESSION-3A (Venue: Hakim Saeed Hall)			TECHNICAL SESSION-3B (Venue: Saleem Asghar Hall)	
Session Chair: Dr. Faisal Nadeem Co-Chair: Dr. Ghulam Murtaza			Session Chair: Dr. Muhammad Zubair Co-Chair: Dr. Qurat ul Ain	
Time (GMT+5)	Plenary Address	Speaker	Plenary Address	Speaker
16:30- 16:50	Hamiltonian Cycles in Directed Toeplitz Graphs	Prof. Dr. Shabnam Malik (FCCU, PAK)	Nuclear Data Applications for Medical and Material Science	Dr. Nouman Amjed (UE, PAK)
16:50-17:10	Asymptotic Regularity of Generalized Averaged Mappings in HR-Ciric-Reich-Rus Contractions	Dr. Rizwan Anjum (UE, PAK)	Green Hydrogen as a Climate Imperative: Decarbonizing Transport sector in the post-Fossil Era	Awais Rafi (UMT, PAK)
17:10- 17:30	Computational investigation for the optical fiber Bragg gratings with cubic- quintic-septic nonlinearity medium with dispersive reflectivity	Dr Hira Tariq (GCWU. PAK)	Targeting cancer with precision: physics of radiotherapy	Raheel Mukhtar (SKMCH, PAK)
17:30-17:50	An extended cubic B-spline computational scheme for solving coupled Burgers' equation involving Caputo derivative	Prof Dr. Muhammad Abbas (UoS, PAK)	A Photovoltaic driven Green Hydrogen Production model: Paving the Future of Energy Transition towards Sustainable Future	Muhammad Shoaib Saleem (UMT, PAK)
17:50-18:10	A blended machine learning algorithm with applications to fractional order differential equations.	Dr. Imran Talib (VU, PAK)		

End of Day-1



TECHNICAL SESSIONS

(Day – 2)



Day 2 (April, 15 2025)

Day 2 (April, 15 2025)					
TECHNICAL SESSION-4A (Online) (Venue: 1C-14)			TECHNICAL SESSION-4B (Venue: Saleem Asghar Hall)		
Chair: Dr. Naveed Afzal Co-Chair: Dr. Qayyum Zafar			Chair: Dr. Nouman Amjed Co-Chair: Dr. Sidra Khalid		
Time (GMT+5)	Invited Talk	Speaker	Time (GMT+5)	Invited Talk	Speaker
9:00-9:20	Emerging Neuromorphic Vision Sensor Technologies	Dr. Ali Imran (NNIC, CN)	9:00-9:20	Tuning the Multiferroicity of BFO with Potential Dopants	Dr. Muhammad Amin (UoL PAK)
9:20-10:00	Synthesis of Advanced Nanostructures via PLAL: A Novel Approach for Energy Harvesting, Storage, Green Hydrogen Production, Carbon Management for Sustainable Development	Dr. M. Ashraf Gondal (KFUPM, KSA)	9:20-9:40	Unveiling Radiation Effects in Metallic and Semiconductor Materials: From Fundamental Insights to Cutting-Edge Applications	Dr. Naveed Afzal (GCU, PAK)
10:00-10:20	Hydroxyl-Deficient or Partially Reduced Metal Oxides for Achieving High Performance Energy Storage Devices	Dr. Nadeem Hussain Solangi (BUCT, CN)	9:40-10:00	Meson-Meson Scattering through an Improved Many body Potential	Dr. Imran Jamil (UMT, PAK)
10:20–10:40	Electrochromic Energy Storage Materials: A Pathway to Carbon Mitigation and Net-Zero Buildings	Dr. Muhammad Norhaffis Bin Mustafa (SU, MY)	10:00-10:20	Discrimination of hard dental tissues of diabetic and healthy participants based on variation in elemental compositional analysis via CF-LIBS	Prof. Dr. Khurram Siraj (UET, PAK)
10:40-11:00	Generating Electricity from the Night Sky using a Thermoradiative Diode.	Dr. Muhammad Hasnan Sazzad (UNSW, AUS)	10:20-10:40	Equivalent Relations, Quotient Spaces, and Their Geometrical Representations and its application in computer science as well as in theoretical physics	Atta-ul-Latif, khawaja
			10:40-11:00	Utilization of a Smart TiCo Alloy for Pressure-Induced Hydrogen Storage	Saad Tariq (UCP, PAK)
11:00-11:15	Tea /Coffee Break				



Day 2 (April, 15 2025)

TECHNICAL SESSION-4C

(Venue: 1C-15)

Chair: Dr. Muhammad Amin

Co-Chair: Dr. Muhammad Tahir

Time (GMT+5)	Tittle	Speaker
9:00-9:20	Rare-earth metal oxide nanocomposites with carbon as electrode for supercapacitors	Dr. Sidra Khalid (UMT, PAK)
9:20-9:40	Hydrothermal Synthesis and Electrochemical Characterization of ZnO Nanoparticles for Glucose Sensing Applications	Dr. Saira Shaheen (UMT, PAK)
9:40-10:00	Investigation Of X-Ray Emission from Laser Produced Aluminium Antimonide Plasma	Sidra Ashraf (UMT, PAK)
10:00-10:20	Y(1S) - Y(1s) scattering cross sections: Analysing interaction using potential model	Ahmed Awan (UMT, PAK)
10:20-10:40	Laser Induced Breakdown Spectroscopy for the Detection and Quantitative Analysis of Toxic and Non-Toxic Elements in Toys	Hira Yaseen (UMT, PAK)
10:40–11:00	Theoretical Investigation of Structural, Mechanical, Electronic and Magnetic properties of Ir-Based Full Heusler Alloys.	Dr. Shamsa Kanwal (UMT, PAK)
11:00-11:15	Tea /Coffee Break	



Day 2 (April, 15 2025)

TECHNICAL SESSION-5A (Online) (Venue: 1C-14)			TECHNICAL SESSION-5B (Venue: Saleem Asghar Hall)		
Chair: Dr. Ghulam Ali Co-Chair: Dr. Zaheer Hussain Shah			Chair: Dr. Bilal Ramzan Co-Chair: Dr. Imran Jamil		
Time (GMT+5)	Invited Talk	Speaker	Time (GMT+5)	Invited Talk	Speaker
11:15-11:40	Emphasizing the hybrid structure and magnetism: "Encapsulation of 2D CrI ₃ within Multi-Walled Carbon Nanotubes: A One-Dimensional van der Waals Heterostructure	Dr. Aqrab ul Ahmad (INL, PT)	11:15-11:40	Doped Layered Cathodes Materials and Their Reaction Mechanism Investigation for Sodium-Ion Batteries	Dr. Ghulam Ali (NUST, PAK)
11:40-12:00	Federated Machine Learning for Energy Load Forecasting: A Case Study of Household Energy Consumption	Sanaullah Manzoor (GCU, UK)	11:40-12:00	Magnetohydrodynamical Model for Stellar and Galactic Winds	Dr. Bilal Ramzan (UAF, PAK)
12:00-12:20	Innovations in Printed Electronics: Emerging Nanomaterials, Sustainable Fabrication, and Semiconductor Applications for a Greener Future	Dr. Syed Muhammad Hafiz (MIMOS, MY)	12:00-12:20	First principal study of MXene M ₂ XT ₂ (M = Hf, Zr; X = C; T = O, F) for photovoltaic applications	Dr. Hassan Ali (UON, PAK)
12:20-12:40	Emerging Trends in Electrochemical Energy Storage: Innovations for Sustainable Solutions	Dr. Syed Shaheen Shah (Kyoto, JP)	12:20-12:40	Quarkonium spectral functions and thermal static quark-antiquark potential from Lattice QCD	Dr. Sajid Ali (GCU, PAK)
12:40-13:00	Study the Photo Physics of the Single Fission Process.	Parisa Hosseinabadi (UNSW, AUS)	12:40-13:00	Boosting Lithium-Ion Storage in Ferrites via Hybridization with Carbon Derivatives	Dr. Mubasher (IU, PAK)

13:00 -14:00

Lunch Break

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Day 2 (April, 15 2025)

TECHNICAL SESSION-5C
(Venue:1C-15)

Session Chair: Dr. Mubasher

Co-Chair: Dr. Shamsa Kanwal

Time (GMT+5)	Invited Talk	Speaker
11:15-11:40	R-Type Hexagonal Ferrite Nanoparticles and Their Electrochemical Sensor for Levofloxacin	Dr. Sajjad Hussain (BNBWU, PAK)
11:40-12:00	Study of cosmic ray propagation with ionization effects by the hydrodynamic approach	Aqeel Afzal (UMT, PAK)
12:00-12:20	Tuning Electrochemical Properties of Mixed Metal Zr-Ni-Co@ZIF-67 Nanocomposites for Supercapacitors	Hassan Shahzad (UMT, PAK)
12:20-12:40	Radial/Halo Acceleration for the Rotated Supported Galaxies	Tausiq Haider Khan (UMT, PAK)
13:00	Lunch Break	



Day 2 (April, 15 2025)

TECHNICAL SESSION-6A (Venue: Saleem Asghar Hall)			TECHNICAL SESSION-6B (Venue: IC-14)	
Session Chair: Dr. Khurram Siraj Co-Chair: Dr. Saira Shaheen			Session Chair: Dr. Naveed Afzal Co-Chair: Dr. M. Tahir	
Time (GMT+5)	Presentation Title	Speaker	Presentation Title	Speaker
14:00-14:15	Comparative Evaluation of Butterfly Rapid Arc and Tangential Rapid Arc Techniques in Radiation Therapy for Breast Cancer Patients with Nodal Involvement	Sahar Mehmood (UMT, PAK)	Synthesis of ZrNiCo Metal-Organic Frameworks for Supercapacitor Applications	Saman Karamat (UMT, PAK)
14:15-14:30	Dosimetric Comparison of Anisotropic Analytical and Acuros Algorithms in Head and Neck Cancer Patients with Denture Implants	Musafr Shan (UMT, PAK)	Density Functional Theory Investigation of Physical Properties and Hydrogen Storage Potential in CaXH ₃ (X: Na, Al and Y)	Muhammad Yasir (UMT, PAK)
14:30-14:45	Synthesis and Characterizations of Carbon-Based Materials for Supercapacitor Applications	Iqra Nisar (UMT, PAK)	Shock Wave Formation in Dusty Plasma	Ahsan Ali Raza (UMT, PAK)
14:45-15:00	Facile synthesis of Zirconium metal organic framework for supercapacitor application	Muhammad Anas Toheed (UMT, PAK)	Development of ZnO-MnO ₂ Nanocomposite as an Efficient Photocatalyst for Methylene Blue Dye Degradation	Nimra Riaz (UMT, PAK)
15:00-15:15	Synthesis and Characterization of Lignocellulose Fiber/Copper doped Nickel Oxide (LC/Cu:NiO) Nanostructure Based Paper Electrode for Perovskite Solar Cells Applications	Rabia Nasar (UMT, PAK)	Fabrication and Characterization of Polyaniline (PANI) Thin Films for Solid State Devices	Sohail Ahmad (UMT, PAK)

15:15-15:30	Enhancement of Photoelectrochemical water splitting properties for M x Doped and Co-Doped WO ₃ (M x = Zr, Sn, Pb, F, S): Theoretical Approach	Mr. M. Sajjad (UMT, PAK)	Structural, Mechanical, Electronic and Magnetic Properties of Zr-Based Heusler Alloys: A DFT Study	Amna Riaz (UMT, PAK)
15:30-15:45	Enhanced Solar Driven Water Splitting for Hydrogen Generation by WO ₃ /WS ₂ Heterostructure Based Photocatalysts	Ms. Sana Zulfiqar (UMT, PAK)	Synthesis of Zr-Ni-Co Oxide Based Carbon Composite as High-Performance Electrode Material for Supercapacitor Applications	Hassan Shehzad Khan (UMT, PAK)
15:45-16:00	Band gap Engineering of CdS Thin Films through Align with CdTe by thermal Evaporation.	Fayyaz Ahmad (UMT, PAK)	Photocatalytic Degradation of Gentian Violet by Pure and Doped Zinc Oxide Nanoparticles	Maheen Zaib (UMT, PAK)
16:00-16:30	CLOSING CEREMONY			
16:00 -16:05	Vote of Thanks (Dr. Muhammad Javaid, Chairperson Department of Mathematics)			
16:05-16:10	Vote of Thanks (Dr. Tanvir Hussain, Department of Physics)			
16:10-16:20	Prof. Abid H. K. Shirwani (Chief Advisor on Innovation, Director ORIC, UMT)			
16:20-16:30	Souvenirs & Certificates Distribution by Prof. Abid H. K. Shirwani (Chief Advisor on Innovation, Director ORIC, UMT)			
16:30	Refreshment			

