

# **UMT 1<sup>st</sup> International Conference on Emerging Trends in Physics**



Program-ICP-24  
March, 7-8, 2024  
(HYBRID EVENT)

**DEPARTMENT OF PHYSICS  
UNIVERSITY OF MANAGEMENT AND TECHNOLOGY,  
LAHORE PAKISTAN.**

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# UMT 1<sup>st</sup> International Conference on Emerging Trends in Physics

## Conference Patrons



**Ibrahim Hassan Murad**  
President ILM Trust,  
President UMT



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



**Ahmad Abdullah**  
DG UMT

## Conference Chair



**Prof. Dr. Sammia Shahid**  
Dean SSC



**Dr. Muhammad Imran Jamil**  
Chairperson, Department of Physics

## Conference Secretary



**Dr. Qurat Ul Ain**



**Dr. Bilal Ramzan**

## Member Organizing Committee



Prof. Dr. Arshad  
Majid Mirza (S.I)



Dr Muhammad  
Arfin Khan Lodhi



Dr. Zaheer Hussain Shah



Dr. Qayyum Zafar



Dr. Tanvir Hussain



Dr. Muhammad Tahir



Dr. Sidra Khalid



Dr. Shamsa Kanwal



Dr. Saira Shaheen



Sidra Ashraf



Rabia Nasar



Syed Nasrullah Ali  
Qazi



Hira Yaseen



Hudabia Murtaza



Palwasha Bilal



Ayesha Islam



Mirza Azam Ul Haq



Talha Saif



Muhammad Anas Toheed

## Table of Content

Conference Patrons .....	2
Conference Chair .....	2
Conference Secretary .....	2
Member Organizing Committee .....	3
INAUGURAL SESSION.....	6
TECHNICAL SESSION-1A.....	7
TECHNICAL SESSION-1B.....	7
TECHNICAL SESSION-2A.....	8
TECHNICAL SESSION-2B.....	8
TECHNICAL SESSION-3A.....	10
TECHNICAL SESSION-3B.....	11
TECHNICAL SESSION-3C.....	12
TECHNICAL SESSION-4A.....	12
TECHNICAL SESSION-4B.....	13
TECHNICAL SESSION-4C.....	14

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## **TECHNICAL SESSIONS**

**(Day – 1)**

# UMT 1<sup>st</sup> International Conference on Emerging Trends in Physics

<b>Day 1 (March 7, 2024)</b>		
<b>Time (GMT+5)</b>	<b>INAUGURAL SESSION (Venue: Hakim Saeed Hall)</b>	<b>Resource Person</b>
9:00-9:45 am	<b>Opening of Registration Desk</b>	<b>Secretary ICP-2024</b>
9:45- 10:00 am	<b>Guests to be Seated</b>	
10:00-10:05 am	<b>Recitation from the Holy Quran</b>	
10:05-10:10 am	<b>National Anthem</b>	
10:10-10:20 am	<b>Welcome &amp; Introduction: Prof. Dr. Sammia Shahid, Dean, SSC, UMT.</b>	
10:20 - 10:50 am	<b>Keynote Address by Prof. Dr Alam Saeed</b> Title: “Artificial Intelligence Generative and its Role in Higher Education.”	
10:50-11:20 pm	<b>Keynote Address by Dr. Iftikhar Ahmad</b> Title: “Quantum Initiatives: Inspire, Engage and Educate Pakistani Youth for Pushing the Boundaries of Quantum Physics.”	
11:45-11:55 am	<b>Address by the worthy Rector UMT</b>	
11:55-12:15 pm	<b>Souvenir Distribution</b>	
12:15 pm	<b>Group Photo</b>	
12:30-2:00 pm	<b>Lunch and Prayer Break</b>	

# UMT 1<sup>st</sup> International Conference on Emerging Trends in Physics

<b>Day 1 (March 7, 2024)</b>			
<b>TECHNICAL SESSION-1A</b>			
<b>(Venue: Hakim Saeed Hall)</b>			
<b>Time (GMT+5)</b>	<b>Title</b>	<b>Speaker</b>	<b>Session Chair</b>
2:00-2:30 pm	<b>Two-Dimensional mapping of laser-induced Mg plasma parameters along with self-generated electric and magnetic fields</b>	Dr. Shazia Bashir	<b>Dr. Arshad Majid Mirza</b>
2:30-3:00 pm	<b>Deposition of materials using plasma devices</b>	Dr Riaz Ahmad	
3:00-3:30 pm	<b>One-dimensional quantum systems and transfer-matrix method</b>	Dr. Afaq Ahmad	
3:30-4:00 pm	<b>Kelvin–Helmholtz instability in magnetically quantized dense plasmas</b>	Dr. M. Jamil	
4:00 pm	<b>Tea Break</b>		

<b>Day 1 (March 7, 2024)</b>			
<b>TECHNICAL SESSION-1B</b>			
<b>(Venue: Saleem Asghar Hall)</b>			
<b>Time (GMT+5)</b>	<b>Title</b>	<b>Speaker</b>	<b>Session Chair</b>
2:00-2:30 pm	<b>Progress of laser Wakefield electron acceleration and its applications at CoReLS/APRI</b>	Mohammad Mirzaie	<b>Dr. Bilal Ramzan</b>
2:30-3:00 pm	<b>Emerging Trends in Laser-Induced Breakdown Spectroscopy Research (Online)</b>	Dr Syed Zuhaib Haider Rizvi	
3:00-3:30 pm	<b>Need of exploitation of Renewable Energy Resources in Pakistan</b>	Dr. Suhail Aftab	
3:30-4:00 pm	<b>KYAMOS Multiphysics Software: Instant, Real Live Simulations of Green Technologies</b>	Dr. Antonis Papadakis	
4:00 pm	<b>Tea Break</b>		

# UMT 1<sup>st</sup> International Conference on Emerging Trends in Physics

<b>Day 1 (March 7, 2024)</b>			
<b>TECHNICAL SESSION-2A</b> (Venue: Hakim Saeed Hall)			
<b>Time (GMT+5)</b>	<b>Title</b>	<b>Speaker</b>	<b>Session Chair</b>
4:30-5:00 pm	<b>Plasmon-enhanced gold-heterostructures of tungsten disulphide nanoflakes (Au/WS<sub>2</sub> NFS) from nonlinear and photodetector applications (Online)</b>	R.Zakaria	<b>Dr. Qayyum Zafar</b>
5:00-5:30 pm	<b>High-field QED in the laboratory: current status and near-term opportunities</b>	G. Sarri	

<b>Day 1 (March 7, 2024)</b>			
<b>TECHNICAL SESSION-2B</b> (Venue: Saleem Asghar Hall)			
<b>Time (GMT+5)</b>	<b>Title</b>	<b>Speaker</b>	<b>Session Chair</b>
4:30-5:00 pm	<b>Thin film materials for photovoltaics: state of the art and new perspectives (Online)</b>	A.Romeo	<b>Dr. Sidra Khalid</b>
5:00-5:30 pm	<b>Controlling the characteristics of laser-driven proton beams and acceleration of heavier ions by advanced acceleration mechanisms (Online)</b>	Hamad Ahmed	

**End Of Day-1**



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## TECHNICAL SESSIONS

(Day – 2)

# UMT 1<sup>st</sup> International Conference on Emerging Trends in Physics

<b>Day 2 (March 8, 2024)</b>			
<b>TECHNICAL SESSION-3A</b>			
<b>(Venue: Saleem Asghar Hall)</b>			
<b>Time (GMT+5)</b>	<b>Title</b>	<b>Speaker</b>	<b>Session Chair</b>
<b>9:00 - 11:00 am</b>			
9:00-9:30 am	<b>QED and QCD Feynman diagrams</b>	Dr. Bilal Masud	
9:30-10:00 am	<b>Improved Performance of Metal Oxide based MSM Photodetectors by Annealing treatment</b>	Dr. Naveed Afzal	<b>Dr. Bilal Ramzan</b>
10:00-10:30 am	<b>Quantum Physics in Action with Real Photons</b>	Dr. Muhammad Sabieh Anwar	
10:30-11:00 am	<b>Energy materials and Resource recovery- A pathway for sustainable development</b>	Dr Rizwan Raza	
11:00-11:30 am	<b>Facile Assembly of Graphite-on-Paper based Strain Sensors for Security Applications</b>	Dr. Zaka Ullah	
11:30-12:00 pm	<b>Achieving high capacity by Ni and Sn based Chalcogenides composites as Anodes for Na-Ion Batteries</b>	Dr. Ghulam Ali	
12:00 -12:30 pm	<b>Unified Dynamics: Bridging Constraints Systems and Unification Theories</b>	Atta-ul-Latif Khawaja	
12:30-2:00 pm	<b>Prayer and Lunch Break</b>		

# UMT 1<sup>st</sup> International Conference on Emerging Trends in Physics

<b>Day 2 (March 8, 2024)</b>			
<b>TECHNICAL SESSION-3B</b>			
<b>(Venue:1C-14)</b>			
<b>Time (GMT+5)</b>	<b>Title</b>	<b>Speaker</b>	<b>Session Chair</b>
10:00-10:30 am	<b>High-quality laser Wakefield accelerators and compact free-electron lasing at SIOM</b>	Song Li	
10:30-11:00 am	<b>Fabrication of <math>\text{Co}_x\text{V}_{1-x}\text{O}_8</math> with Sulphur Doped Graphitic Carbon Nitride for Energy Storage Devices</b>	M. Rasheed	<b>Dr. Shamsa Kanwal</b>
11:00-11:15 am	<b>Designing of Carbon-Based Bismuth Vanadate Nanocomposite with Superior Photocatalytic and Anti-bacterial Activity</b>	Tasaddaq Fatima	
11:15-11:30 am	<b>J/psi-J/psi scattering cross sections of Quadratic and cornell potentials.</b>	H. Ahmed Awan	
11:30-11:45 am	<b>Assimilation of Emerging Physics Perceptions in Forensic Science</b>	Shahzad Sohail	
11:45-12:00 pm	<b>Galactic Winds in Variable Geometries</b>	Uzair Majeed	
12:00-12:15	<b>Fabrication of <math>\text{Co}_x\text{V}_{1-x}\text{O}_8</math> with Sulphur Doped Graphitic Carbon Nitride for Energy Storage Devices</b>	M Rasheed	
12:15-12:30 pm	<b>Synthesis and characterization of transition metal oxide nanoparticle by Co-precipitation technique</b>	Sanam	
12:30-2:00 pm	<b>Prayer and Lunch Break</b>		

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<b>Day 2 (March 8, 2024)</b>			
<b>TECHNICAL SESSION-3C</b>			
<b>(Venue:1N-13)</b>			
<b>Time (GMT+5)</b>	<b>Title</b>	<b>Speaker</b>	<b>Session Chair</b>
11:15-11:30 am	<b>Theoretical study of structural properties of <math>KMO_2</math> (M = Sm, Tb, Dy) for spintronics applications.</b>	Dr. Hassan Ali	<b>Dr. Saira Shaheen</b>
11:30-11:45 am	<b>Energy dependence of laser Wakefield accelerated electron beams on the dopant gas</b>	Qurat Ul Ain	
11:45-11:55 pm	<b>Investigating the Structure of Cosmic-Ray Modified Shocks: A Hydrodynamic Study</b>	S. N. A. Qazi	
11:55-12:05 pm	<b>Femtosecond laser-induced surface structuring of Titanium and Stainless-Steel alloys for biomedical implant</b>	Hira Yaseen	
12:05-12:15 pm	<b>Spectroscopy of Charmonium</b>	Adeel Rahmat	
12: 15-2:00 pm	<b>Prayer and Lunch Break</b>		

<b>Day 2 (March 8, 2024)</b>			
<b>TECHNICAL SESSION-4A</b>			
<b>(Venue: Hakim Saeed Hall)</b>			
<b>Time (GMT+5)</b>	<b>Title</b>	<b>Speaker</b>	<b>Session Chair</b>
2:00-2:30 pm	<b>Laser Induced breakdown spectroscopy of magnetically confined water residue plasma</b>	Dr. Khurram Siraj	<b>Dr Tanvir Hussain</b>
2:30-3:00 pm	<b>Controllable tuning of physical properties of 2D materials</b>	Dr. Masood Yousaf	
3:00-3:30 pm	<b>Influence of temperature on the magnetic Properties and exchange interaction of rapidly quenched La/Ce or LaCe substituted nanocrystalline NdFeB alloys</b>	Dr. Mozaffar Hussain	
3:30-4:00 pm	<b>Tuning the Multiferroicity of BFO with Potential Dopants</b>	Dr. Muhammad Amin Sagar	

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<b>Day 2 (March 8, 2024)</b>			
<b>TECHNICAL SESSION-4B</b> (Venue: Saleem Asghar Hall)			
<b>Time (GMT+5)</b>	<b>Title</b>	<b>Speaker</b>	<b>Session Chair</b>
2:00-2:30 pm	<b>Applications Of Nanotechnology In Semiconductor Industry</b>	Syed M. Hafiz	<b>Dr. Shamsa Kanwal</b>
2:30-2:40 pm	<b>Ternary metal oxide carbon composite as high-performance electrode material for supercapacitor applications</b>	Shama Rao	
2:40-2:50 pm	<b>Galactic Transonic Winds with Cosmic-rays and Waves</b>	Abid Hussain	
2:50-3:00 pm	<b>Epsilon-near-zero Response in Magnetron Sputtered Zinc Oxynitride Thin Films</b>	Maria Khalil	
3:10-3:20 pm	<b>Enhancing Cold Storage Efficiency through Physics-Driven Design Optimization</b>	Shahid Ali	
3:20-3:30 pm	<b>Preparation and Characterizations of Molybdenum Oxide and Reduced MoO<sub>3</sub> Thin Films for Hydrogen Generation</b>	Zunaira Naseem	
3:30-3:40 pm	<b>Preparation of WSe<sub>2</sub>/WO<sub>3</sub> Heterostructure thin films-based Photocatalysts for Hydrogen Generation</b>	Tanvir Hussain	
3:40-3:50 pm	<b>Fabrication and electrical characterization of organic semiconductor based photodetectors.</b>	Qayyum Zafgar	

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<b>Day 2 (March 8, 2024)</b>			
<b>TECHNICAL SESSION-4C</b> (Venue:1C-14)			
<b>Time (GMT+5)</b>	<b>Title</b>	<b>Speaker</b>	<b>Session Chair</b>
2:00-2:20 pm	<b>Comparative study of CO<sub>2</sub> conversion to useful products</b>	Ayesha Ghafoor	<b>Dr. Saira Shaheen</b>
2:20-2:30 pm	<b>High surface area metal-organic framework (MOFs) derived mesoporous carbon as an electrode for supercapacitors</b>	Shama Rao	
2:30-2:40 pm	<b>Preparation and Characterization of Fe and Cr co-doped ZnO by Sol-gel Method</b>	Nafeesa Asif	
2:40-2:50 pm	<b>Photoluminescence Response and Magnetic Character of Iron Doped Ceria Thin Films</b>	Azqa Farrukh	
2:50-3:00 pm	<b>Magnetodielectric Anomalies and Spin Reorientation in Fe<sub>x</sub>O<sub>1+x</sub> (x=2,3) Thin Films- Effects of Microwave</b>	Sidra Khalid	
3:00-3:10 pm	<b>Ground state energy of hydrogen atom using shooting method</b>	Tayyeba Tahira	
3:10-3:20 pm	<b>Synthesis and Characterization of Cr<sub>x</sub>V<sub>1-x</sub>O@S-g-C<sub>3</sub>N<sub>4</sub> composites for Supercapacitors.</b>	Zaheer Hussain Shah	
3:20-3:30 pm	<b>Structural and Dielectric Properties of MgFe<sub>2</sub>O<sub>4</sub> Nanoparticles.</b>	Muhammad Tahir	
3:30-4:00 pm	<b>Biodistribution of Iron Oxide Stabilized 99m Tc-ZrO<sub>2</sub> Nanoparticles in Rabbit Using Honey as a Capping Agent</b>	Dr. Muhammad Imran	
4:00-4:30 pm	<b>Closing Ceremony (Hakim Saeed Hall)</b>		