



## 4<sup>th</sup> PU International Conference on Gravitation and Cosmology

November 22-25, 2021

Faculty of Science

University of the Punjab, Lahore-Pakistan

**(TENTATIVE PROGRAM)**

Time (hours) PKT	Monday (Day-1) - 22.11.2021
0830-1000	REGISTRATION
1000-1045	INAUGURATION CEREMONY
1045-1100	GROUP PHOTO WITH VICE-CHANCELLOR
1100-1130	<b>Tea Break</b>

**Session Chair: Muhammad Sharif**

1130-1200	<b>Francesco De Paolis (Online)</b> Never Bet against Einstein
1200-1230	<b>Kazuharu Bamba (Online)</b> Review on the Issue of Dark Energy and Modified Gravity
1230-1300	<b>Bobomurat Ahmedov (Online)</b> On Observational Properties of Gravitational Compact Objects
1300-1400	<b>Lunch Break</b>

**Session Chair: Bobomurat Ahmedov / Ghulam Abbas**

1400-1440	<b>Rong-Gen Cai (Online)</b> Primordial Black Holes and Stochastic Gravitational Waves Induced by Scalar Perturbation
1440-1505	<b>Khalid Saifullah</b> Deformations of the Kerr Black Hole
1505-1520	<b>Tea Break</b>

**Session Chair: Asghar Qadir**

1520-1550	<b>Naresh K. Dadhich (Online)</b> The Two Constants of Spacetime Structure
1550-1620	<b>Martin Dominik (Online)</b> The New Frontiers of Gravitational Microlensing
1620-1700	<b>Anzhong Wang (Online)</b> Testing Gravitational Theories with Broken Lorentz Symmetry by Gravitational Wave and Black Hole Observations



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<b>Time (hours) PKT</b>	<b>Tuesday (Day-2) - 23.11.2021</b>
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**Session Chair: Azad A. Siddiqui**

0930-1015	<b>Asghar Qadir</b> Foliation of Schwarzschild and Reissner-Nordstrom Black Holes Revisited
1015-1045	<b>Francisco S. N. Lobo (Online)</b> Curvature-Matter Couplings in Modified Gravity
1045-1100	<b>Muhammad Zubair</b> Gravitationally Decoupled Fluid Spheres in $f(R, T)$
1100 - 1120	<b>Tea Break</b>

**Session Chair: Khalid Saifullah**

1120-1140	<b>Azad A. Siddiqui</b> On Solutions of the Einstein-Maxwell Field Equations using the Segre Classification
1140-1155	<b>Ghulam Abbas</b> Complexity Factor for Anisotropic Source in Non-minimal Coupling Metric $f(R)$ Gravity
1155-1210	<b>Suhail Khan</b> Spherically Symmetric Static Lorentzian Ricci Soliton
1210-1225	<b>Faisal Javed</b> Stability of Thin-Shell Wormholes with Non-Linear Electrodynamics
1225-1240	<b>Umber Sheikh</b> On Dynamics of Anisotropic Compact Stars in Rainbow Gravity
1240-1320	<b>Luciano Rezzolla (Online)</b> Imaging a Supermassive Black Hole
1320 – 1400	<b>Special Session (devoted to Prof. Ghulam Shabbir)</b>
1400 – 1800	<b>Working Lunch/Local Excursion</b>



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<b>Time (hours) PKT</b>	<b>Parallel Session-I Tuesday (Day-2) - 23.11.2021</b>
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Session Chair: Rabia Saleem

1120-1135	<b>Muhammad Ayub Khan Yousaf Zai</b> Wavelet Analysis of Interaction of Radio-wave with the Ionosphere at Pakistan Air Space
1135-1150	<b>Zoha Tariq</b> Effects of Charge on Polytropes in Modified Theory of Gravity
1150-1205	<b>Muhammad Zeeshan Gul</b> Study of Isotropic Compact Objects in Energy-Momentum Squared Gravity
1205-1215	<b>Ume Farwa</b> Role of Structure Scalars in the Study of Axially and Reflection Symmetric Spacetime
1215-1225	<b>Allah Ditta</b> Matter Accretion onto Holographic Massive Gravity Black Hole
1225-1235	<b>Hammad Nazar</b> Stellar Shear-Free Gravitational Collapse with Karmarkar Condition in $f(R)$ Gravity
1320 – 1400	<b>Special Session (devoted to Prof. Ghulam Shabbir)</b>
1400 – 1800	<b>Working Lunch/Local Excursion</b>

<b>Time (hours) PKT</b>	<b>Parallel Session-II Tuesday (Day-2) - 23.11.2021</b>
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Session Chair: Umber Sheikh

1120-1130	<b>Mariyah Aslam</b> Compact Objects by Gravitational Decoupling in $f(R)$ Gravity
1130-1140	<b>Fizza Furqan</b> Extended Decoupled Static Spherical Objects in $f(R, T)$ Theory
1140-1150	<b>Sana Arshad</b> Effect of Electric Field on Collapsing String Fluid in Rainbow Gravity
1150-1200	<b>Yousra Aziz</b> On Evolution of Compact Stars from String Fluid in Rastall Gravity
1320 – 1400	<b>Special Session (devoted to Prof. Ghulam Shabbir)</b>



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1400 – 1800	<b>Working Lunch/Local Excursion</b>
<b>Time (hours) PKT</b>	<b>Wednesday (Day-3) - 24.11.2021</b>

**Session Chair: Francesco De Paolis / Ibrar Hussain**

0930-1000	<b>Sijie Gao (Online)</b> General Properties of Light Rings for Stationary Spacetimes
1000-1015	<b>Muhammad Jawed Iqbal/Hira Fatima</b> Globular Clusters Age Determination for Putting Constraints on Cosmological Models
1015-1045	<b>Gonzalo J. Olmo (Online)</b> Recent Progress on Ricci-Based Gravity Theories
1045 - 1100	<b>Tea Break</b>

**Session Chair: Philippe Jetzer / Hafiza Rizwana Kausar**

1100-1115	<b>Rabia Saleem</b> Wormholes with Vanishing Sound Speed under a Numerical Approximation
1115-1130	<b>Rubab Manzoor</b> Cluster of Stars in Modified Gravity
1130-1145	<b>Aisha Siddiq</b> Gravitational Waves Propagation in the Context of $f(R)$ Theory
1145-1200	<b>Ayesha Ikram</b> Stability Analysis of Einstein Universe in $f(G,T)$ Gravity
1200-1230	<b>Aroonkumar Beesham (Online)</b> Dark Energy, Chaplygin Gas and Viscosity
1230-1300	<b>Salvatore Capozziello (Online)</b> Non-Local Gravity Cosmology
1300 - 1400	<b>Lunch Break</b>

**Session Chair: Gonzalo J. Olmo / Zeeshan Yousaf**

1400-1440	<b>Luis Herrera (Online)</b> Hyperbolically Symmetric Fluids
1440-1520	<b>Philippe Jetzer (Online)</b> Tests of General Relativity with LISA
1520-1550	<b>Diego Rubiera-Garcia (Online)</b> Light Rings as Smoking Guns of Black Hole Mimickers
1550-1620	<b>Ugur Camci (Online)</b> Integration of the Geodesic Equations via Noether Symmetries
16205-1650	<b>Malcolm A. H. MacCallum (Online)</b> Spacetimes with Continuous Local Isotropies



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1830-2100	<b>Conference Banquet Gala (Theme: Pink + Blue)</b>
<b>Time (hours) PKT</b>	<b>Parallel Session-I - 24.11.2021 Wednesday (Day-3)</b>

**Session Chair: Suhail Khan**

1100-1115	<b>Umara Kausar</b> Mei Symmetries of Bardeen Spacetimes
1115-1130	<b>Aqsa Yasmin</b> Massive Sterile Neutrinos in Dark Matter Halos
1130-1145	<b>Iqra Shahid</b> Study of Warm in Action using Irreversible Thermodynamical Description within Rastall Gravity
1145-1200	<b>Nadeem Azhar</b> Gravitational Baryogenesis in Modified Theories of Gravity
1300 - 1400	<b>Lunch Break</b>

<b>Time (hours) PKT</b>	<b>Parallel Session-II - 24.11.2021 Wednesday (Day-3)</b>
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**Session Chair: Muhammad Zubair**

1100-1110	<b>Shahid Chaudhary</b> Thermodynamics and Grey-body Factors of Black Holes
1110-1120	<b>Shiraz Khan</b> A Framework for Generalized Polytopes with Complexity Factor using Charged Cylindrical Symmetry
1120-1130	<b>Muhammad Bilal</b> Analysis of the Velocity Rotational Curves Via Weyl-Interactive Modified Gravity
1130-1140	<b>Umer Rehman</b> The Quantum Gravitational Instability Analysis of Compact Astrophysics Objects
1140-1150	<b>Muhammad Tahir</b> Spherically Symmetric Gravitational Collapse in Einstein Gauss–Bonnet theory
1300 - 1400	<b>Lunch Break</b>



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<b>Time (hours) PKT</b>	<b>Thursday (Day-4) - 25.11.2021</b>
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**Session Chair: Jameel Un Nabi**

0930-0945	<b>Ibrar Hussain</b> Schwarzschild Black Hole Surrounded by Quintessence and the Existence of Marginally Stable Circular Orbits of Test Particles
0945-1000	<b>Iqra Nawazish</b> Cosmological Evolution of Non-Flat GGPDE $f(R)$ Model
1000-1015	<b>Isil Basaran Oz (Online)</b> Solutions for the Plane Symmetric $f(R)$ Theory via Noether Symmetry
1015-1030	<b>Syed Naqvi (Online)</b> Standing Gravitational Waves
1030-1045	<b>Artur Alho (Online)</b> Dynamical Systems Analysis of Quintessence
1045 - 1100	<b>Tea Break</b>

**Session Chair: Ugur Camci / Muhammad Jawed Iqbal**

1100-1115	<b>Jaime de Cabo Martin (Online)</b> Inequivalent Quantum Cosmological Bouncing Models and the Primordial Structure
1115-1130	<b>Ruth Lazkoz (Online)</b> Observational Constraints on Cosmological Solutions of $f(Q)$ Theories
1130-1145	<b>Danijela Brankovic (Online)</b> Dynamics of the $\Lambda$ CDM Model of the Universe from the Mathematical Point of View
1145-1205	<b>Muhammad Sharif/Amal Majid</b> Decoupled Solutions in Self-Interacting Brans-Dicke Gravity
1205-1230	<b>Jameel Un Nabi</b> Publishing of a New List of Important Weak-Interaction Nuclei during Presupernova Evolution
1230-1315	<b>Special Session (Devoted to Prof. Asghar Qadir on his 75<sup>th</sup> birthday)</b>
1315-1400	<b>Closing Ceremony</b>
1400-1500	<b>Lunch</b>