

# ONE-DAY INTERNATIONAL PhD STUDENTS WORKSHOP

Frontiers in Astrophysics, Gravitation and Cosmology

Harbin Institute of Technology (China) and Uzbekistan

Saturday, 17 October 2026 | 09:40–18:05 | China Standard Time (UTC+8)

Venue: Room # 716, Physics Building • Presentation format: PhD talks: 20 min + 5 min Q&A; invited talk: 30 min + 5 min Q&A

## Opening ceremony

Moderator: prof. Ahmadjon Abdujabbarov

| Time        | Program                                                                                            |
|-------------|----------------------------------------------------------------------------------------------------|
| 09:30–09:40 | Opening address — Prof. Chenxun Yuan, Harbin Institute of Technology                               |
| 09:40–09:50 | Welcome address — Prof. Jun Li, Deputy Dean of the Graduate School, Harbin Institute of Technology |
| 09:50–10:00 | Welcome address — Academician Prof. Kadyr Gulamov, Uzbekistan                                      |
| 10:00–10:10 | Welcome address — Academician Prof. Bobomurat Ahmedov, Uzbekistan                                  |

## Session I — Gravitational Waves, Black Holes and Orbital Dynamics

Chairperson: Dr. Akbar Davlataliyev

| Time        | Speaker                         | Title of Presentation                                                                               |
|-------------|---------------------------------|-----------------------------------------------------------------------------------------------------|
| 10:10–10:45 | Academician Prof. Kadyr Gulamov | TBA                                                                                                 |
| 10:45–11:10 | Burkhon Abidkhanov              | Gamma-ray Bursts as Electromagnetic Counterparts of Gravitational Wave Events                       |
| 11:10–11:35 | Ziyodulla Turakhonov            | Particle Dynamics and Quasi-Periodic Oscillations in the Non-Minimally Coupled Horndeski Black Hole |
| 11:35–12:00 | Ikrom Ergashov                  | Circular Orbits and S2 Dynamics in Kerr–Newman Black-Bounce Spacetime                               |
| 12:00–12:25 | Munisa Boltatoshova             | Spin Without Rotation: How Magnetized Black Holes in Anisotropic Matter Mimic Kerr ISCO Signatures  |
| 12:25–14:25 | LUNCH BREAK (2 hours)           |                                                                                                     |

## Session II — Compact Objects and Relativistic Astrophysics

Chairperson: Dr. Mirzabek Alloqulov

| Time        | Speaker              | Title of Presentation                                                                                       |
|-------------|----------------------|-------------------------------------------------------------------------------------------------------------|
| 14:25–14:50 | Shokhzod Jumaniyozov | Dynamics of Spinning Particles around Magnetized Kerr Black Holes                                           |
| 14:50–15:15 | Yokubjon Isaqjonov   | The Relativistic Transfer Function for Accretion Disks around Kerr Black Holes                              |
| 15:15–15:40 | Sirojiddin Otaboyev  | Investigation of the Role of Gravity and Dark Matter in the Internal Structure of Anisotropic Compact Stars |

|                    |                                |                                                |
|--------------------|--------------------------------|------------------------------------------------|
| <b>15:40–16:05</b> | Sherzod Sayfiyev               | Neutron Dark Decay and Hyperonic Neutron Stars |
| <b>16:05–16:20</b> | COFFEE AND<br>NETWORKING BREAK |                                                |

### Session III — High-Energy Astrophysics and Cosmology

Chairperson: Prof. Sanjar Shaymatov

| <b>Time</b>        | <b>Speaker</b>             | <b>Title of Presentation</b>                                                                   |
|--------------------|----------------------------|------------------------------------------------------------------------------------------------|
| <b>16:20–16:45</b> | Zhantay                    | Empirical Determination of $\beta$ -Law Wind Acceleration Profiles in High-Mass X-Ray Binaries |
| <b>16:45–17:10</b> | Xuwei Zhang                | Analytical Poly $\Lambda$ CDM through Cosmic Chronometers                                      |
| <b>17:10–17:35</b> | Nurmukhammed<br>Aytimbetov | Josephson Effects in Slowly Rotating Neutron-Star Spacetimes                                   |

### Joint discussion and closing

Moderator: Prof. Chenxun Yuan

| <b>Time</b>        | <b>Program</b>                                                                                           |
|--------------------|----------------------------------------------------------------------------------------------------------|
| <b>17:35–17:55</b> | Joint scientific discussion — future collaboration, joint publications, exchanges, and research projects |
| <b>17:55–18:05</b> | Closing remarks — workshop summary, acknowledgments, and next steps                                      |