

Quantum to Cosmos: Ideas and Applications

Summer Research School, June 25 – July 4 2019, Gebze, TURKEY

Quantum designates the laws of physics, which govern the functioning of nature at atomic and subatomic scales and percolate into the giant scales of the cosmos. The powerful ideas ranging from quantum to cosmos continue unlocking the secrets of the universe, thereby ensuring its understanding at the deepest level and paving the way for advanced technologies of the future. The Research School will introduce graduate students and young researchers to a wide range of frontier topics from quantum to cosmos.

Lecturers

- Amanda Cooper-Sarkar (University of Oxford, UK)
- Tansu Daylan (Massachusetts Institute of Technology, USA)
- Cora Dvorkin (Harvard University, USA)
- Samir Mathur (Ohio State University, USA)
- Viatcheslav Mukhanov (University of Munich, Germany)
- Michael Peskin (Stanford University, USA)
- Subir Sarkar (University of Oxford, UK)
- Tracy Slatyer (Massachusetts Institute of Technology, USA)
- Andrei Starinets (University of Oxford, UK)

Topics Covered

- Standard Model: Developments and Challenges
- Precision Frontiers in High Energy Physics
- Quantum Perturbations in the Early Universe
- Holography, Finite-Temperature QFT and Hydrodynamics
- Information Paradox and the Universe
- Cosmic Microwave Background
- Dark Matter and Dark Energy
- Big Bang Nucleosynthesis

Organizers: Alikram N. Aliev (TÜBİTAK TBAE), Tansu Daylan (MIT USA),
Yasaman Farzan (IPM Iran)

Deadline for Applications: June 15, 2019