



RESEARCH INSTITUTE FOR FUNDAMENTAL SCIENCES



Frontiers of Science

# Quantum Horizons: Developments and Opportunities

Summer Preparatory School, June 27 - 30 2022 Gebze, TÜRKİYE

The goal of this Preparatory School is to provide a concise conceptual introduction to the current topics of quantum science and technology. This will prepare the participants to take full advantage of the specialized lectures of the following more advanced School-Workshop. The lectures will be supplemented by project sessions, which will pave the way for future involvement of motivated participants in the research process.

## Program

### *June 27, Monday*

09:30 – 10:15

Opening Speeches: **Alikram Nuhbalaoğlu** (TBAE, Director), **Hasan Mandal** (President of TÜBİTAK), **Mehmet Fatih Kacır** (Deputy Minister of Industry and Technology)

10:15 – 11:00

**Özgür Müstecaplıoğlu**

Introduction to Quantum Sensing

*Break*

11:15 – 12:00

**Cengiz Onbaşı**

Applied Quantum Sensing

*Break*

13:00 – 13:45

**Ceyhun Bulutay**

Quantum Information and Quantum Optics

*Break*

15:00 – 16:00

**Alexander Sergienko**

How to Engineer and Use Entangled-Photon States

### *June 28, Tuesday*

11:00 – 11:45

**Ceyhun Bulutay**

Quantum Information and Quantum Optics

*Break*

12:00 – 12:45

**Barış Çakmak**

Thermodynamics of Quantum Control

*Break*

14:30 – 15:15

**Kadir Durak**

ABC of Quantum Communication: An Experimental Perspective

*Break*

19:00 – 20:00

**Barry Sanders**

On Quantum Computing

## *June 29, Wednesday*

<b>11:00 – 11:45</b>	<b>Oğuz Gülseren</b> <i>Break</i>	Material Properties for Quantum Technologies
<b>12:00 – 12:45</b>	<b>Barış Çakmak</b> <i>Break</i>	Thermodynamics of Quantum Control
<b>14:30 – 15:15</b>	<b>Kadir Durak</b> <i>Break</i>	ABC of Quantum Communication: An Experimental Perspective
<b>15:30 – 16:15</b>	<b>İnanç Adagideli</b>	Topological Matter for Topological Quantum Computing I

## *June 30, Thursday*

<b>11:00 – 11:45</b>	<b>İnanç Adagideli</b> <i>Break</i>	Topological Matter for Topological Quantum Computing II
<b>12:00 – 12:45</b>	<b>Oğuz Gülseren</b>	Superconducting Quantum Matter for Quantum Simulations
<b>12:45 – 13:00</b>	Closing Remarks	