

GIPE25: EVENT PROGRAM

TUESDAY 16/09

 13:30-14:30

 University of Trieste, room 2A, building D

WELCOME

Participants will be welcomed with gadgets and helpful information to check-in at the Controvento Hostel / ICTP Guest House.

 14:30-17:30

 University of Trieste, room 2A, building D


OPENING CEREMONY

14:30-16:30

Institutional greetings from the professors of the Physics Department. They'll illustrate what it means to do research in Trieste, it will be followed by the presentation of some of our sponsors.

16:30-17:30

Coffee break

 17:30-20:00

FREE TIME / POSSIBLE DINNER

 20:00-23:00

 Collegio Universitario Luciano Fonda (Via Fabio Severo, 40)

SOCIAL ACTIVITY WITH STUDENTS FROM COLLEGIO FONDA



WEDNESDAY 17/09

🕒 9:00-12:30

GUIDED TOUR OF THE CITY

🕒 12:30-14:00

Free lunch

🕒 14:30-18:30

📍 Department of Physics (Via Alfonso Valerio, 2)

SEMINARS

You'll attend 5 conferences of 30 minutes each. The seminars will cover topics such as: the history of Quantum Mechanics; Physics of Complex Systems; High Performance Computing - Big Data - Machine Learning; Interdisciplinary Electronic and Advanced Sensor Laboratory.

Soon you'll find out more about our speakers and seminars' abstracts!

● 14:30-16:30

- "A brief overview of merging binary neutron stars" by Prof. Luciano Rezzolla

I will discuss how neutron-star binaries represent fantastic tools to explore fundamental aspects of gravitational and particle physics. In particular, I will provide a few examples of the ways in which neutron stars can be used to explore fundamental physics, ranging from their spectral properties, the possibility of phase transition to quark matter, and the amplification of super-strong magnetic fields.

- Seminar by Prof. Laura Gonella

- "Second law of thermodynamics and Fluctuation Theorems" by Prof. Alberto Imparato

In microscopic systems in contact with external baths the size of the thermal fluctuations can be as large as the average system energy.

Thus, as an example, microscopic engines are not simple rescaled versions of their macroscopic counterparts, and a statistical thermodynamic description is needed, if one wants to characterize properly the relevant thermodynamical quantities.

In this respect stochastic thermodynamics provides a framework for extending the notions of classical thermodynamic quantities such as work, heat and entropy to the level of individual trajectories for microscopic systems both at equilibrium and out-of-equilibrium.



In this framework work, heat and entropy become fluctuating quantities, and the fluctuation theorems describe the constraints on such fluctuations, extending the second law of thermodynamics to microscopic out-of-equilibrium systems.

In my lecture I will review the recent extension of the second law to the microscopic realm and discuss a few examples of microscopic out-of-equilibrium systems.

● 16:30-17:30 coffee break

● 17:30-18:30

○ “100YearsofQuantumMechanics:AHistory of Understanding What Cannot Be Seen” by Prof. Angelo Bassi

This talk traces the extraordinary journey of quantum mechanics over the past century, from the earliest atomic models to the profound conceptual revolutions that reshaped our understanding of reality. Beginning with Dalton's atomic hypothesis and culminating in Schrödinger's wave mechanics, the presentation highlights the progressive realization that matter exhibits both particle and wave-like behaviors. It then explores the deep philosophical and physical implications of quantum theory, focusing on the Einstein-Podolsky-Rosen paradox and Bell's theorem, culminating in the experimental confirmation of quantum nonlocality. The final part of the talk addresses modern quantum technologies—including quantum computing, communication, and sensing—emphasizing how the fragility of quantum states is being harnessed for transformative technological applications. As we celebrate the International Year of Quantum in 2025, this retrospective not only honors a century of discovery but also looks ahead to a quantum-enabled future.

🕒 18:30-20:00

POSSIBLE DINNER

🕒 20:00-22:30

📍 INAF-OATS (SS14 Località Basovizza, 302)

VISIT OF THE ASTRONOMICAL OBSERVATORY OF TRIESTE

You will have the opportunity to visit Margherita Hack's Specola, where the famous astrophysicist and science popularizer worked. The observatory is located in a rural area of Trieste (Basovizza), where light pollution is lower, allowing for better star observation.

Note: private transportation to and from OATS; the return bus will take you directly to your accommodation.



THURSDAY 18/09

 9:00-13:00

 SISSA (Via Bonomea, 265)

VISITING SISSA (Scuola Internazionale Superiore di Studi Avanzati)

You will have the chance to visit one of the research centers founded by the Triestine physicist Paolo Budinich.

The structure of the visit is the following:

- Conference:

Dott. Pierluigi Masai will talk about his own educational journey and the testimonies of the people he has met, using them as a starting point to briefly illustrate the richness of the Trieste ecosystem, outlining its historical development. The talk aims to encourage critical reflection on the dynamics of the research world, highlighting the importance of recognizing the structural elements that shape, constrain, and enable it. By acknowledging the role of science in society, the session seeks to spark interest in the foundations and ethics of research. In particular, it will emphasize the importance of studying the history of research and the need to deconstruct its myths.

- Presentation of SISSA's research branches

- Coffee break

- "Discussion game" about open access

 13:00-14:30

LUNCH AT SISSA

 15:00-19:00

 Padriciano/Basovizza

VISITING LABORATORIES

Participants will have the opportunity to visit the laboratories of AREA Science Park, Elettra Sincrotrone, CNR and INFN.

More details will be available soon!

 19:00-23:00



FREE EVENING

FRIDAY 19/09

 9:00-11:30

 INAF-OATS (Via Giambattista Tiepolo, 11)

CONFERENCE

You will have the chance to discover what kind of research a physicist can do at INAF.

 12:30-14:00

LUNCH AT ICTP

 14:00-17:00

 ICTP (Str. Costiera, 11)

VISITING ICTP

You will have the opportunity to visit the International Centre for Theoretical Physics, founded by Paolo Budinich and Abdus Salam in 1964.

They'll tell us about the history of ICTP, followed by some conferences held by ICTP's researchers.

 17:00-18:30

Coffee break and the possibility to join us to discover **Miramare Castle**.

 20:30-23:00

 Caffè degli Specchi (Piazza Unità d'Italia, 7)

SOCIAL DINNER



SATURDAY 20/09

 10:00-12:00

 Collegio Universitario Luciano Fonda (Via Fabio Valerio, 40)

CLOSING CEREMONY

- 10:00-11:30 round table with students and professors
- 11:30-12:00 farewell

