

First Announcement (February 8, 2024)

Frontiers of Quantum and Mesoscopic Thermodynamics (FQMT'24)

21 July (Sunday) – 27 July (Saturday) 2024, Prague, Czech Republic

<https://fqmt.fzu.cz/24/>

Scope of the Conference

The main goal of the conference is traditional: To contribute to a better understanding of the behavior of quantum systems out of equilibrium. To reach this aim we also need to include studies and improve our knowledge of systems in equilibrium and steady state situations. The conference will thus address foundations of quantum physics, quantum many body physics, statistical physics, and thermodynamics relying on the theoretical and experimental methods of condensed matter physics and quantum optics. The systems considered will be mainly on the order of mesoscopic (nanoscale) size and include those of both artificial and natural origin.

Special attention will be given to non-equilibrium quantum systems, physics of information and physics of biological systems. Subjects from astrophysics, gravitation or cosmology related to the above scope will also be included.

The aim of FQMT'24 conference is to create a bridge between researchers from the fields of physics and related disciplines as covered by the above conference topics.

Following the tradition of the FQMT conferences, FQMT'24 will again bring together a unique combination of both young and experienced scientists across a disciplinary spectrum covering the above-mentioned topics. The interdisciplinary character of the conference will be supported by the choice of key speakers who, apart from their specializations, are not only able to report specific results within their fields but are also able to discuss the state of the art of their fields from the standpoint of a broader perspective of overlap with other fields. It is an objective to gather important scientists from overlapping branches of physics who can mutually benefit from the exchange of different views and ideas, experiences from studies of many different systems and various theoretical and experimental approaches to the study of current problems in physics. It is intended that this arrangement of the scientific program of the conference will again significantly contribute to the formulation of challenging questions and problems, as well as their related answers that are nowadays essential to improve the understanding of the foundations of quantum physics, many body physics, quantum statistical physics of systems far from equilibrium, the

physics of nanoscale and biological systems, and further, will motivate new collaboration and intensive discussions between experts from differing fields of physics, chemistry, and biology. Additional information on the scientific background of the conference and details on the conference series history, including programs of the public lectures and concerts presented at the previous conferences, can be found in the files 'Scientific Background' and 'The history, characteristics, and overview of the FQMT conference events' available for [download](#) from the conference www pages. For the history of the FQMT conferences and details of their programs see also the www pages: <https://fqmt.fzu.cz/>.

Topics

- Non-equilibrium quantum phenomena
- Foundations of quantum physics
- Quantum measurement, entanglement and coherence
- Dissipation, dephasing, noise and decoherence
- Many body physics, quantum field theory
- Quantum statistical physics and thermodynamics
- Quantum optics
- Quantum simulations
- Physics of quantum information and computing
- Topological states of quantum matter, quantum phase transitions
- Macroscopic quantum behavior
- Cold atoms and molecules, Bose-Einstein condensates
- Mesoscopic, nano-electromechanical and nano-optical systems
- Biological systems, molecular motors and quantum biology
- Cosmology, gravitation and astrophysics

Conference format

The organizers would like to meet all FQMT'24 participants on-site in Prague. However, if some speakers would have a serious problem to come to Prague, limited number of them will still have a possibility to present his/her contribution online.

Invited contributions:

Core of the conference scientific program will consist of:

- **Invited Talk**

The program has two basic types of talks:

- Overview invited talks cover a somewhat broader area or a few related topics (30 minutes),

- Shorter invited talks (20 minutes) deal with promising progress in developing and understanding particular topics or techniques related to the scope of the conference.

No contributed talks are assumed.

- **Invited posters** presented by participants invited by the Scientific Committee.

Non-invited contributions:

- Contributed posters
 - Participants who are not invited are encouraged to submit one or two poster contributions. The Scientific Committee will decide poster acceptance.

Public Lectures and Special Talks

Following the tradition of FQMT conferences, the FQMT'24 program will include several public lectures which will present interesting topics in the form attractive for both the conference participants and general audience. The public lectures will be held at special venues and accompanied by concerts. There will be also a few special talks which will overview the topics important for the scientific part of the conference.

The following speakers are confirmed:

- Peter Hänggi (*University of Augsburg*)
- Allen Hermann (*University of Colorado Boulder*)
- John C. Mather (*Goddard Space Flight Center, NASA*)

Additional speakers will be confirmed later on.

Important dates

- **On-line registration has started:** October 30, 2023
- **Abstract submission has started:** December 1, 2023
- **Fee payment has started:** February 5, 2024
- **Conference on-site registration starts:** Sunday, July 21, 2024, 16:00 (4 p.m.)
- **Scientific program starts:** Monday, July 22, 2024, 8:00 (8 a.m.)
- **Scientific program ends:** Saturday, July 27, 2024, 16:00 (4 p.m.)

Deadlines

- Lower fee payment deadline: **March 25, 2024**
Some poster contributing (non-invited) participants may be informed about the decision regarding their abstracts after the Lower fee payment deadline. In such a case, the participant is entitled to pay the lower fee within two weeks from the notification about the (first) poster acceptance.
- Abstract submission deadline for invited talks: **April 1, 2024**
- Abstract submission deadline for posters: **April 15, 2024**
- Notification of author's contribution acceptance (not relevant for invited authors)
The Scientific Committee will send notification within approximately two weeks from receiving the abstract.
- Deadline for the specification of availability of the invited speakers for their talks: **April 15, 2024**
- Hotel Pyramida (main conference site) reservation deadline: **May 20, 2024**
- Deadline for minor modifications of the submitted abstracts: **May 27, 2024**
- Non-contributing participant online registration deadline **June 3, 2024**
- Bank transfer/card payment deadline: **June 17, 2024**

Registration

Those who intend to participate in the conference, including invited speakers and poster contributors, are kindly asked to register as soon as possible by filling out the [registration form](#). This essentially helps organizers to communicate with the participants and to prepare high-quality program.

Please notice that the on-line registration is independent on the conference fee payment. Details of the fee payment and link for card payment are available [here](#).

To avoid serious problems in the creating of the conference program, it is essential that maximum number of participants will be available during the whole conference (from Monday morning to Saturday late afternoon).

Please bear in mind that Saturday's conference program will be equally important as in other days and will include some key talks.

Please take the above facts seriously when you plan your stay in Prague.

Personal homepage (My Profile)

For your convenience, namely **participant's homepage**, called **My Profile** is available for each participant. When you log in to your homepage you can deal with various tasks related to the FQMT'24.

The My Profile page is accessible from the FQMT'24 [main page](#) via [Login](#) button (placed below the left menu column). Your "My Profile" page centralizes the access to the most of your activities, i.e. from the "My Profile" page you can:

1. review and modify your registration data
2. enter, review and modify your abstract(s)
3. pay conference and accompanying person fee(s) on-line and review your payments (including the bank transfer payments that already arrived at the conference account).

Conference fee

All participants, including invited speakers and organizers, are requested to pay the conference fee. Because the conference budget is created only by conference fees, all participants are kindly requested to pay the conference fee at their earliest convenience (after the conference account will be open).

Registration fee of participants will cover:

- Social program for the participants
- Conference materials and a soft attaché case
- Poster session buffet
- Refreshments during all coffee breaks
- Selected conference materials in electronic form
- On-line access (via Zoom) to all talk sessions (for remote participants only)
- Records of all talk sessions - available for replay during the conference and one week after the conference
- On-line access to public lectures and (highly probably) to concerts (for remote participants only)

Before March 25, 2024: **750 EUR**

Between March 25 and June 17, 2024: **800 EUR**

On site after arrival: **850 EUR**

Registration fee of accompanying persons will cover:

- Social program for the accompanying persons mentioned in the section Accompanying persons
- Several guided tours through Prague for accompanying persons will be organized in time of the conference daily scientific program
- Personal badge - free entrance to the conference sites buildings
- Handbag with maps, writing pad and pencils

Payable at any time, for each accompanying person: **180 EUR**

Instructions for participants

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Abstract preparation

Maximum length of the abstract is an equivalent of A4 page, including title, authors' names and affiliations. Authors are kindly asked to submit their abstract using [on-line form](#) available from the FQMT'24 homepage. In the form, you can type in special characters (superscripts, subscripts and Greek letters) and enter references; however, figures are not allowed.

Instructions for speakers

Facilities available for oral presentations:

- Conference notebook with MS Windows operating system
- Conference MacBook
- Video projector
- Overhead projector
- Flip chart
- Laser pointers

Formats allowed for the computer presentations:

- PowerPoint files (MS Office 97-2019, 365)
- PDF files

For your presentation you can use either your notebook or the conference one.

Posters

Poster session date will be announced later on.

A single board will be assigned for each poster.

Dimensions: width 97 cm, height 119 cm

Pins will be available.

Accommodation

The organizers of the conference have reserved limited number of rooms for participants of FQMT'24 in the **Pyramida Hotel, the site of the conference**, with advantageous price.

In the Pyramida Hotel most of the FQMT'24 conference events will take place, including all regular talks, poster session and some social events.

The hotel provides its guests with breakfast and for the participants of the conference a possibility to buy a lunch at a reduced price. Participants are strongly recommended to accommodate in this hotel and to book since this gives them a possibility of optimal use of their time during the conference.

You can make your reservation using the direct link to the Pyramida Hotel which is available at the conference [Accommodation](#) pages.

Musical, Art and Social Programs

An encompassing social program includes the number of social events and tours in order that participants may enjoy not only physics but also Prague during the conference, sometimes in a way, which is hardly available to common visitors of Prague. Hence, for accompanying persons this is an opportunity of rare quality to visit to this city.

Participants of FQMT'24 conference will have an exceptional opportunity to spend some time in the Wallenstein Palace. The participants and their partners could enjoy the large baroque Garden of the Wallenstein Palace with its nice Sala Terrena for discussions during the evening welcome party. A guided tour will be organized through the huge baroque complex of the Wallenstein Palace. This would be a unique experience by itself since it is difficult to see all these places under ordinary circumstances.

In keeping with the multidisciplinary character of the scientific program, the cultural richness of the city of Prague and the tradition of the previous FQMT conferences, the FQMT'24 program will feature concerts performed by world-class musicians, held at outstanding venues of the city. The list of these places will highly probably include the National House of Vinohrady (Neo-Renaissance social and culture centre with luxurious halls), the Gothic Cathedral of St. Vitus at Prague Castle (one of the symbols of the Czech Lands), and the Baroque Strahov Monastery (with its famous library and exceptional view of Prague) or the Břevnov Monastery.

The scientific, the fine arts, and the musical programs are intended as a complement to one another, where scientists, historians of the arts and musicians are encouraged to mingle and share their knowledge and experience. An encompassing social program is planned which will include tours and a number of very special events unavailable to the general tourist.

The following events and tours will be available for the accompanying persons:

- **All conference concerts** at exceptional venues of Prague like Saint Vitus Cathedral of the Prague Castle, Prague theaters and churches.
- **Other social events**, e.g. Welcome party in the beautiful Baroque Wallenstein Palace Garden
- **Guided tours (subject to change)**
 - Monday, July 22, 2 p.m. – 4 p.m.
Leisure orientation tour: Basic facts about Prague
 - Strahov Monastery
 - Panoramic view of Prague
 - Walking through the courtyards of Prague Castle and some of its garden
 - Tuesday, July 23, 9.30 a.m. – 12 a.m.
Old and New Town of Prague
 - Franciscan Garden
 - Church of Our Lady of the Snows
 - Wenceslav Square
 - Lucerna Palace
 - Old Town Square
 - Church of Our Lady Before Týn and Saint Jacob Church
 - Rudolfinum
 - Manes Bridge
 - Wednesday, July 24, 9.30 a.m. – 12 a.m.
The Lesser Town of Prague
 - Picturesque New World of Hradcany
 - Stag Moat
 - Charles Bridge
 - Kampa Island and John Lennon Wall
 - Church of Virgin Mary Victorious: Infant Jesus Christ of Prague
 - The Lesser Town Square
 - Thursday, July 25, 9.30 a.m. – 12 a.m.
Historical Site of Vysehrad
 - Panoramic views of Prague
 - Baroque fortress
 - National Cemetery
 - Friday and Saturday programs and also possible program on Sunday, July 28, will be determined later on.

The conference is held under the auspices of

Prof. RNDr. Eva Zažímalová, CSc.
President of the Czech Academy of Sciences

The conference is supported by

- Committee on Education, Science, Culture, Human Rights and Petitions of the Senate of the Parliament of the Czech Republic
- Institute of Physics, the Czech Academy of Sciences
- Department of Physics, Texas A&M University, USA
- Institute for Theoretical Physics, University of Amsterdam, Netherlands
- College of Engineering and Science, University of Detroit Mercy, USA

The conference is organized by

- Institute of Physics, the Academy of Sciences of the Czech Republic
- Committee on Education, Science, Culture, Human Rights and Petitions of the Senate of the Parliament of the Czech Republic

Organizing Committee

Conference chair: Václav Špička (*Institute of Physics, Czech Academy of Sciences, Prague*)

Jiří Bok (*Charles University, Prague*)

Howard Brubaker (*Detroit*)

Pavla Bušová (*Prague*)

Barbora Chudíčková (*Institute of Physics, Czech Academy of Sciences, Prague*)

Soňa Fialová (*Prague*)

Etienne Hofstetter (*London*)

Pavel Hubík (*Institute of Physics Czech Academy of Sciences, Prague*)

Peter D. Keefe (*University of Detroit Mercy*)

Souheil Khaddaj (*Kingston University, London*)

Zdeněk Kožíšek (*Institute of Physics, Czech Academy of Sciences, Prague*)

Ján Krajník (*Tacca Agency, Prague*)

Josef Kšica (*Prague*)

Karla Kuldová (*Institute of Physics, Czech Academy of Sciences, Prague*)

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Jiří J. Mareš (*Institute of Physics, Czech Academy of Sciences, Prague*)
Theo M. Nieuwenhuizen (*University of Amsterdam*)
Claudia Pombo (*Amsterdam*)
Jarmila Šidáková (*Institute of Physics, Czech Academy of Sciences, Prague*)
Marie Svobodová (*Tacca Agency, Prague*)

Scientific Committee

Chair: Václav Špička (*Institute of Physics, Czech Academy of Sciences, Prague*)

Co-Chair: Theo M. Nieuwenhuizen (*University of Amsterdam*)

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Biman Bagchi (*Indian Institute of Science, Bengalúru*)
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Dietrich Belitz (*University of Oregon, Eugene*)
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Dirk Bouwmeester (*University of California, Santa Barbara*)
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Ortwin Hess (*Trinity College Dublin*)
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Heiner Linke (*Lund University*)
Peter Vaughan Elsmere McClintock (*Lancaster University*)
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Michael Thorwart (*University of Hamburg*)
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Vlatko Vedral (*University of Oxford, Clarendon Laboratory*)
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