

Workshop on
“Blackbody Radiation Induced Effects and Phenomena”
February 13 - 17, 2023

organized by

Philipp Haslinger (TU Vienna), Francesco Intravaia (HU Berlin),
Arkadiusz Kosior (U of Innsbruck), Dennis Rätzel (ZARM, Bremen)

• Monday, February 13th, 2023

09:00 – 09:30 **Registration**

09:30 – 09:45 **Welcome**

09:45 – 10:30 **Jean-Jacques Greffet (IOGS, U Paris-Saclay)**

Thermal metasurfaces

10:30 – 11:00 **Coffee Break**

11:00 – 11:45 **Carsten Henkel (U of Potsdam)**

Casimir-Polder interaction at finite temperature

11:45 – 12:10 **Bettina Beverungen (HU Berlin)**

Numerical evaluation of the Casimir-Polder interaction at finite temperature

12:10 – 14:15 **Lunch Break**

14:15 – 14:40 **Sol Carretero Palacios (U Autonoma de Madrid)**

Modelling and design of photonic structures for quantum trapping

14:40 – 15:05 **Victoria Esteso Carrizo (LENS, Firenze)**

Casimir-Lifshitz force in multilayer systems: optical interference effect and pre-melting of ice

15:05 – 15:30 **René Sedmik (TU Vienna)**

Out of equilibrium thermal Casimir effect and how to measure it

15:30 – 15:45 **Coffee Break**

15:45 – 16:10 **Daniel Reiche (HU Berlin)**

Nonequilibrium atom-field interactions at finite temperature

16:10 – 16:35 **Omar Jesús Franca Santiago (U Kassel)**

Quantum friction near nonreciprocal media and chiral media

16:35 – 19:45 **Beverages & Free Discussions**

19:45 – **Social Event: Narrenturm**

Departure at the ESI. Tours usually last 30-90 mins.

- **Tuesday, February 14th, 2023**

09:00 – 09:45 **Robin Kaiser (U Côte d'Azur, Nice)**

Collective cold-atom interactions and astrophysical perspectives

09:45 – 10:30 **Luis Froufe-Pérez (U of Fribourg)**

Interactions induced by fluctuating electromagnetic fields

10:30 – 11:00 **Coffee Break**

11:00 – 11:25 **Arno Rauschenbeutel (HU Berlin)**

Thermalization via Heat Radiation of an Individual Object Thinner than the Thermal Wavelength

11:25 – 11:50 **Philipp Schneeweiss (HU Berlin)**

Feedback-cooling the fundamental torsional mechanical mode of a tapered optical fiber to 30 mK

11:50 – 12:15 **Ivor Kresic (TU Vienna)**

Exploring quantum coherence, cooling and self-ordering with optical frequency combs

12:15 – 14:15 **Lunch Break**

14:15 – 14:40 **Stephen Barnett (U of Glasgow)**

Unusual representations of blackbody radiation

14:40 – 15:05 **Stefan Rotter (TU Vienna)**

Blackbody radiation and the Weyl law in disordered media

15:05 – 15:30 **Tomasz Wasak (NCU, Torun)**

Non-equilibrium Fermi polarons in driven-dissipative systems

15:30 – 20:00 **Poster Session & Reception**

- **Wednesday, February 15th, 2023**

09:00 – 09:45 **Rolf Kuiper (U Duisburg-Essen)**

Radiation effects in Star and Planet Formation

09:45 – 10:40 **Christian Lisdat (PTB, Braunschweig)**

Optical Clocks: An Introduction

10:40 – 11:00 **Coffee Break**

11:00 – 11:25 **Helmut Ritsch (U of Innsbruck)**

Broad Band Radiation Gradient Forces in Space

11:25 – 11:50 **Cameron Bunney (U of Nottingham)**

Detecting the Unruh Effect in Thermal Analogue Systems

11:50 – 12:15 **Marcus Huber**

TBA

12:15 – 14:15 **Lunch Break**

14:15 – 14:40 **Ekkehard Peik (PTB, Braunschweig)**

Effects of Blackbody Radiation in Atomic Clocks

14:40 – 15:05 **Tanja Mehlstäubler (PTB, Braunschweig)**

Blackbody Radiation Shifts in an Optical In⁺/Yb⁺ Ion Clock

15:05 – 15:30 **Marta Maria Marchese (U of Siegen)**

Large baseline optical imaging assisted by single photons and linear quantum optics

15:30 – 15:40 **Group Photo**

16:00 – 00:00 **Excursion & Conference Dinner**

Departure at the ESI.

- **Thursday, February 16th, 2023**

09:00 – 09:45 **Anne Hutter (U of Copenhagen)**

The physical processes governing structure formation in our Universe

09:45 – 10:30 **Ernst M. Rasel (Leibniz U)**

Quantum bases for inertial interferometry

10:30 – 11:00 **Coffee Break**

11:00 – 11:25 **Ruth Durrer (UNIGE, Geneva)**

The Cosmic Microwave Background

11:25 – 11:50 **Mathieu Remazeilles (CSIC, Madrid)**

Probing the early universe with spectral distortions of the cosmic microwave background blackbody radiation

11:50 – 12:15 **Dennis Schlippert (Leibniz U)**

Understanding the environment surrounding a very long baseline atom interferometer

12:15 – 14:15 **Lunch Break**

14:15 – 14:40 **Franck Pereira Dos Santos (SYRTE, Paris)**

Short range force sensing with a trapped atom interferometer

14:40 – 15:05 **Victoria Xu (MIT, Cambridge)**

Probing exotic potentials with lattice atom interferometry

15:05 – 15:30 **Naceur Gaaloul (Leibniz U)**

Quantum State Engineering for precision measurements

15:30 – 19:45 **Beverages & Free Discussions**

19:45 – **Social Event: Wintermarkt & Ice skating**

Departure at the ESI.

- **Friday, February 17th, 2023**

– **Departure Day**

All talks take place at ESI Boltzmann Lecture Hall! Wearing an FFP2 mask is strongly recommended!