

# PROGRAM

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**Sunday, 14 July 2019**

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17:00 – 21:00 Registration and welcome refreshment

*Location: Pyramida Hotel - lobby*

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# Monday, 15 July 2019

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07:50 – 08:20

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## Opening addresses

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*Location: Pyramida Hotel Lecture Hall  
(chairperson: Václav Špička)*

08:20 – 09:50

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## 1 session: Nonequilibrium statistical physics

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*Location: Pyramida Hotel Lecture Hall  
(chairperson: Michael Thorwart)*

08:20 – 08:50

Joachim Ankerhold:

*Out-of-equilibrium operation of a quantum heat engine beyond weak thermal contact*

08:50 – 09:20

Jianshu Cao:

*Quantum coherence and thermodynamics of non-equilibrium transport*

09:20 – 09:50

Sebastian Erne:

*Universal dynamics far from equilibrium*

09:50 – 10:10

Coffee break

10:10 – 12:10

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## 2 session: Quantum transport

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*Location: Pyramida Hotel Lecture Hall  
(chairperson: Oren Tal)*

10:10 – 10:40

Peter Hänggi:

*Anomalous heat diffusion*

10:40 – 11:10

Jukka P. Pekola:

*Quantum heat transport via a superconducting qubit*

11:10 – 11:40

Uri Peskin:

*Towards mechanical stabilization of molecular tunneling devices: Cooling by heating, high voltage, and more*

11:40 – 12:10

Jan van Ruitenbeek:

*Advances and challenges in single-molecule electron transport*

12:10 – 13:00

Lunch

13:00 – 15:10

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## 3 session - A parallel: Many body physics

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*Location: Pyramida Hotel Lecture Hall A  
(chairperson: Thomas Vojta)*

13:00 – 13:30

Fernando Sols:

*Protected cat states in a driven superfluid boson gas*

13:30	–	14:00	Lea Santos:	<i>Thouless and relaxation time scales in many-body quantum systems</i>
14:00	–	14:30	Holger Fehske:	<i>Exotic criticality and symmetry-protected topological states in dimerised fermion, boson and spin chain models</i>
14:30	–	14:50	Boris V. Fine:	<i>Many-body dynamic localization effect in periodically driven finite clusters of spins 1/2 without disorder</i>
14:50	–	15:10	Sylvain Nascimbene:	<i>Synthetic Landau levels with atomic dysprosium</i>
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13:00	–	15:10	<b>3 session - B parallel: Quantum transport, tunneling</b>	
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<i>Location: Pyramida Hotel Lecture Hall B</i>				
<i>(chairperson: Juan Carlos Cuevas)</i>				
13:00	–	13:30	Oren Tal:	<i>Electronic noise due to temperature differences across nanoscale conductors: Beyond standard thermal and shot noises</i>
13:30	–	14:00	Alfredo Levy Yeyati:	<i>Revealing the fine structure of Andreev levels in hybrid nanowires</i>
14:00	–	14:30	Alessandro Braggio:	<i>Cooper pair entanglement manipulation in hybrid topological Josephson junctions</i>
14:30	–	14:50	Efrat Shimshoni:	<i>Quantum thermal Hall effect of chiral spinons in a Kagome strip</i>
14:50	–	15:10	Mauro Antezza:	<i>Giant interatomic energy-transport amplification with nonreciprocal photonic topological insulators</i>
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13:00	–	15:10	<b>3 session - C parallel: General physics, quantum chemistry</b>	
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<i>Location: Pyramida Hotel Lecture Hall C</i>				
<i>(chairperson: Jianshu Cao)</i>				
13:00	–	13:30	Armin Shayeghi:	<i>Quantum-assisted molecule metrology</i>
13:30	–	14:00	Daniel Neuhauser:	<i>GW0 for &gt; 10K electrons: Stochastic GW</i>
14:00	–	14:30	Hans A. Schuessler:	<i>Touching horizons with lasers</i>
14:30	–	14:50	Yutaka Shikano:	<i>Statistical cost of interactive quantum phase estimation in quantum chemistry</i>
14:50	–	15:10	Lawrence S. Schulman:	<i>Decoherence and the size of a wave packet</i>
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13:00	–	15:10	<b>3 session - D parallel: Biophysics</b>	
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*Location: Pyramida Hotel Lecture Hall D*

*(chairperson: Shmuel Gurvitz )*

- 13:00 – 13:30 Stefan Klumpp: *Propulsion and fluctuations in magnetotactic bacteria*
- 13:30 – 14:00 Philip Hemmer: *Nanodiamonds and nanophosphors for quantum enhanced bio-sensing*
- 14:00 – 14:30 Marcelo Lozada-Cassou: *Violation of the local electroneutrality condition in an inhomogeneous macroions solution*
- 14:30 – 14:50 Lev Mouroukh: *Physical models of proton-pumping complexes in mitochondria membranes*
- 14:50 – 15:10 Jiří J. Mareš: *The possible role of extracellular tissue in biological neural networks*

15:10 – 15:30 Coffee break

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15:30 – 18:00 **4 session: Light matter interaction**

*(chairperson: Warwick Bowen)*

- 15:30 – 16:00 Edward S. Fry: *A diffuse reflecting material for optical studies*
- 16:00 – 16:30 Ortwin Hess: *Ultrafast quantum nanophotonics: From nanoplasmonic strong coupling to quantum chaos in semiconductor lasers*
- 16:30 – 17:00 Dirk Bouwmeester: *Rare earth and DNA nanophotonics*
- 17:00 – 17:30 Michael Thorwart: *Nonequilibrium quantum phase transitions in a hybrid atom-optomechanical system*
- 17:30 – 18:00 Norbert Kroo: *Surface plasmon assisted room temperature Cooper pair formation in gold films*

18:00 – 19:00 Free time and transfer to Wallenstein Palace

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19:00 – 22:00 **Welcome party**

*Location: Wallenstein Palace and its Garden*

19:00 – 19:30 Opening

19:30 – 22:00 Welcome party in the Wallenstein Palace Garden

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## Tuesday, 16 July 2019

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07:50 – 09:50 **1 session: Physics of quantum information**

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*Location: Pyramida Hotel Lecture Hall*

*(chairperson: Andrew White)*

- 07:50 – 08:20 Yuval Gefen: *Weak measurement induced geometric phase: A topological transition*
- 08:20 – 08:50 Giuseppe Falci: *Adiabatic quantum operations in systems of ultrastrongly coupled matter and radiation*
- 08:50 – 09:20 Mikko Möttönen: *Fast measurement and initialization of superconducting qubits*
- 09:20 – 09:50 Paul G. Kwiat: *Investigations of quantum superadditivity*
- 09:50 – 10:10 Coffee break

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10:10 – 12:10 **2 session: Foundations of quantum physics**

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*Location: Pyramida Hotel Lecture Hall*

*(chairperson: Ana María Cetto)*

- 10:10 – 10:40 Wolfgang Belzig: *Is energy conserved when nobody looks?*
- 10:40 – 11:10 Nicolas R. Gisin: *Non-locality in quantum networks*
- 11:10 – 11:40 Jens Eisert: *Quantum field simulators: How they evolve in time, how they can be read out, and in what way they may realize quantum thermal machines*
- 11:40 – 12:10 Andrew N. Jordan: *Quantum measurement engines*
- 12:10 – 13:00 Lunch

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13:00 – 15:00 **3 session - A parallel: Molecular junctions, tunneling**

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*Location: Pyramida Hotel Lecture Hall A*

*(chairperson: Alessandro Braggio)*

- 13:00 – 13:30 Juan Carlos Cuevas: *Peltier cooling in molecular junctions*
- 13:30 – 14:00 Thierry Martin: *Finite frequency noise in a normal metal - topological superconductor junction*
- 14:00 – 14:20 David Sanchez: *How to distinguish between interacting and noninteracting molecules in tunnel junctions*

- 14:20 – 14:40 Kristen Kaasbjerg: *Fluctuation-driven Coulomb drag in interacting quantum dot systems*
- 14:40 – 15:00 Thibaut Jonckheere: *Giant shot noise from Majorana zero modes in topological trijunctions*

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13:00 – 15:00 **3 session - B parallel: Thermodynamics, general physics**

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*Location: Pyramida Hotel Lecture Hall B*

*(chairperson: Saar Rahav)*

- 13:00 – 13:30 Thomas Schmidt: *A bath with a memory: Initial states in quantum thermodynamics*
- 13:30 – 14:00 Friedemann Queisser: *Dynamically assisted nuclear fusion*
- 14:00 – 14:20 Peter D. Keefe: *Second law implications of the size dependency in the adiabatic phase transition of Type I superconductors*
- 14:20 – 14:40 Daniel P. Sheehan: *Supradegeneracy, thermophotovoltaics, and the second law of thermodynamics*
- 14:40 – 15:00 Denys I. Bondar: *Towards a resolution of the Riemann hypothesis via quantum control*

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13:00 – 15:00 **3 session - C parallel: General physics**

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*Location: Pyramida Hotel Lecture Hall C*

*(chairperson: Andrei Khrennikov)*

- 13:00 – 13:30 Ehtibar N. Dzhafarov: *Measures of contextuality and non-contextuality*
- 13:30 – 14:00 Gary G. Rozenman: *Utilization of surface gravity water waves for the observation of quantum mechanical and optical phenomena*
- 14:00 – 14:20 Fabrizio Piacentini: *Quantum optical simulation of entangled particles near open time-like curves*
- 14:20 – 14:40 Roland E. Allen: *Black hole entropy, the black hole information paradox, and time travel paradoxes from a new perspective*
- 14:40 – 15:00 Theo M. Nieuwenhuizen: *The Standard Model of particle physics with Diracian neutrino sector*

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13:00 – 15:00 **3 session - D parallel: Many body physics**

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*Location: Pyramida Hotel Lecture Hall D*

*(chairperson: Efrat Shimshoni)*

13:00	–	13:30	Matteo Brunelli:	<i>Conditional dynamics of optomechanical back-action evading measurements</i>
13:30	–	14:00	Jean Etesse:	<i>Sub-second optical storage in an atomic frequency comb memory using dynamical decoupling</i>
14:00	–	14:20	Fabio Taddei:	<i>Failure of conductance quantization in two-dimensional topological insulators due to non-magnetic impurities</i>
14:20	–	14:40	Dirk Semkat:	<i>Electron-hole plasma influence on band edge and Rydberg exciton lines in cuprous oxide</i>
14:40	–	15:00	Gergely Zarand:	<i>Universal scaling of quantum geometric tensor in disordered metals</i>
15:00	–	15:20	Coffee break	
15:20	–	16:40	<b>4 session - A parallel: Quantum thermodynamics</b>	
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<i>Location: Pyramida Hotel Lecture Hall B</i>				
<i>(chairperson: Saar Rahav)</i>				
15:20	–	15:50	Kater Murch:	<i>Exploring quantum thermodynamics with superconducting qubits</i>
15:50	–	16:20	Eric Lutz:	<i>Quantum fluctuation theorems beyond two-point measurements</i>
16:20	–	16:40	Wei-Min Zhang:	<i>Quantum thermodynamics of single particle systems</i>
15:20	–	16:40	<b>4 session - B parallel: Quantum optics</b>	
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<i>Location: Pyramida Hotel Lecture Hall C</i>				
<i>(chairperson: Edward Fry)</i>				
15:20	–	15:50	Alexei V. Sokolov:	<i>Coherent Raman spectroscopy: From stand-off detection to nano-sensing</i>
15:50	–	16:20	Yuri Rostovtsev:	<i>Excited quantum coherence: From plasmonically induced transparency to quantum correlation</i>
16:20	–	16:40	Sebastien Gleyzes:	<i>Optimal control for quantum metrology</i>
15:20	–	16:40	<b>4 session - C parallel: Physics of quantum information</b>	
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<i>Location: Pyramida Hotel Lecture Hall D</i>				
<i>(chairperson: Jean Etesse)</i>				

15:20	–	15:50	Andrew N. Cleland:	<i>Surface acoustic wave phonons: Quantum control and quantum state transfer</i>
15:50	–	16:20	Amir H. Safavi-Naeini:	<i>Making hybrid quantum systems on a chip</i>
16:20	–	16:40	Eytan Katzav:	<i>Distances in random networks - recent results</i>
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16:40	–	18:40	<b>Poster session and refreshment</b>	
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<i>Location: Pyramida Hotel - first floor</i>				
18:40	–	19:00	Break	
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19:00	–	22:00	<b>Evening session: Public lecture of William Phillips and concert</b>	
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<i>Location: Pyramida Hotel Lecture Hall</i>				
<i>(chairperson: Václav Špička, Peter Keefe)</i>				
19:00	–	19:15	Music introduction and opening address	
19:15	–	20:30	Public lecture	
19:15	–	20:15	<b>William D. Phillips:</b>	<i>Time, Einstein and the coolest stuff in the universe</i>
20:15	–	20:30	Discussion after the lecture of William Phillips	
20:30	–	20:45	Break	
20:45	–	22:00	<b>Concert of classical music</b>	



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## Wednesday, 17 July 2019

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07:50 – 09:50 **1 session: Thermodynamics and foundations of quantum physics**

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*Location: Pyramida Hotel Lecture Hall*

*(chairperson: Eric Lutz)*

- 07:50 – 08:20 Udo Seifert: *The inevitable cost of precision*  
08:20 – 08:50 Abraham Nitzan: *Thermodynamics of strongly coupled driven quantum systems*  
08:50 – 09:20 Igor Dotsenko: *Quantum themodynamics in cavity QED*  
09:20 – 09:50 Marco Gramagna: *A journey through quantum measurement paradigms: From weak measurements to protective measurements, and more*

09:50 – 10:10 Coffee break

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10:10 – 12:10 **2 session - A parallel: Nonequilibrium statistical physics**

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*Location: Pyramida Hotel Lecture Hall A*

*(chairperson: James Freericks)*

- 10:10 – 10:40 Michael Bonitz: *Ultrafast dynamics of strongly correlated finite fermion systems*  
10:40 – 11:10 Claudio Verdozzi: *Steering magnetic skyrmions with currents: A nonequilibrium Green's functions approach*  
11:10 – 11:40 Pawel Danielewicz: *Nuclear slabs in terms of Green's functions: Collective oscillations with short-range correlations*  
11:40 – 12:10 Frithjof B. Anders: *Theory of inelastic electron tunneling spectroscopy for probing correlated many-body systems*

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10:10 – 12:10 **2 session - B parallel: Quantum thermodynamics**

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*Location: Pyramida Hotel Lecture Hall B*

*(chairperson: Igor Dotsenko)*

- 10:10 – 10:40 Gershon Kurizki: *Quantum thermodynamics under control*  
10:40 – 11:10 Saar Rahav: *Against the flow: A colloidal Maxwell's demon*  
11:10 – 11:40 Rafael Sánchez: *Non-equilibrium systems as demons*

11:40	–	12:10	Jerzy Łuczka :	<i>Quantum analogue of energy equipartition theorem</i>
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10:10	–	12:10	<b>2 session - C parallel: Light matter interaction</b>	
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<i>Location: Pyramida Hotel Lecture Hall C</i>				
<i>(chairperson: Edward Fry)</i>				
10:10	–	10:40	Evgenii Narimanov:	<i>Ballistic metamaterials</i>
10:40	–	11:10	Radim Filip:	<i>Quantum and stochastic physics of instable systems</i>
11:10	–	11:40	Janne Ruostekoski:	<i>Open quantum dynamics of cooperatively coupled atoms and light</i>
11:40	–	12:10	Michele Governale:	<i>Single-atom lasing in normal-superconductor quantum dots</i>
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10:10	–	12:10	<b>2 session - D parallel: Physics of quantum information</b>	
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<i>Location: Pyramida Hotel Lecture Hall D</i>				
<i>(chairperson: Denis Vion)</i>				
10:10	–	10:40	Thomas Walther:	<i>Quantum key distribution in a telecom network</i>
10:40	–	11:10	Andrew G. White:	<i>Communicating via ignorance &amp; imaging via counting</i>
11:10	–	11:40	Mario Krenn:	<i>On computer-inspired science</i>
11:40	–	12:10	Elisabetta Paladino:	<i>Critical current 1/f noise in graphene Josephson junction</i>
12:10	–	13:00	Lunch	
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13:00	–	15:30	<b>3 session - A parallel: Many body physics, Quantum transport</b>	
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<i>Location: Pyramida Hotel Lecture Hall A</i>				
<i>(chairperson: Jürgen Stockburger)</i>				
13:00	–	13:30	Shmuel Gurvitz:	<i>Directed particle flow at zero bias induced by random versus periodic drive</i>
13:30	–	14:00	Francesco Petruccione:	<i>From unitary to open quantum walks</i>
14:00	–	14:30	Amir O. Caldeira:	<i>Amplification of the diamagnetic response in small Hubbard rings</i>
14:30	–	14:50	Michael Ridley:	<i>Numerically exact full counting statistics of the Anderson impurity model</i>
14:50	–	15:10	Peter Schmitteckert:	<i>Learning DFT and inverse mean field theories</i>

15:10	–	15:30	Yasuhiro Utsumi:	<i>Full-counting statistics of information content and the optimum capacity</i>
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13:00	–	15:30	<b>3 session - B parallel: Quantum thermodynamics</b>	
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<i>Location: Pyramida Hotel Lecture Hall B (chairperson: Abraham Nitzan)</i>				
13:00	–	13:30	Stefan Nimmrichter:	<i>Quantum (thermo-)dynamics of randomly probed systems</i>
13:30	–	14:00	Bei-Lok Hu:	<i>Quantum thermodynamics from the nonequilibrium dynamics of open systems</i>
14:00	–	14:30	Konstantin E. Dorfman:	<i>Quantum heat engine with weak and strong coupled baths</i>
14:30	–	14:50	Hyunggyu Park:	<i>Coherence effect in a multi-level quantum-dot heat engine</i>
14:50	–	15:10	Haitao Quan:	<i>Path integral approach to quantum thermodynamics</i>
15:10	–	15:30	Marti Perarnau-Llobet:	<i>Work fluctuations in slow processes: Quantum signatures and optimal control</i>
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13:00	–	15:30	<b>3 session - C parallel: Topological states</b>	
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<i>Location: Pyramida Hotel Lecture Hall C (chairperson: Thomas Vojta)</i>				
13:00	–	13:30	Gianluca Rastelli:	<i>Decoherence and relaxation of topological states in extended quantum Ising models</i>
13:30	–	14:00	Pascal Simon:	<i>Topologically protected Majorana zero modes around the edge of a magnetic skyrmion</i>
14:00	–	14:30	Andrei D. Zaikin:	<i>Topology-controlled macroscopic quantum coherent effects in multi-terminal Andreev interferometers</i>
14:30	–	14:50	Llorenç Serra:	<i>Conductance oscillations and magnetic orbital effects with chiral Majorana modes</i>
14:50	–	15:10	Jerome Rech:	<i>Minimal excitations in the fractional quantum Hall regime</i>
15:10	–	15:30	Walter Hahn:	<i>Thermalization as an invisibility cloak for fragile quantum superpositions</i>

13:00	–	15:30	<b>3 session - D parallel: Foundations of quantum physics</b>	
<i>Location: Pyramida Hotel Lecture Hall D</i>				
<i>(chairperson: Theo Nieuwenhuizen)</i>				
13:00	–	13:30	Arkady Plotnitsky:	<i>Something happened: The real, the virtual, and the actual in quantum field theory</i>
13:30	–	14:00	Ana María Cetto:	<i>On the physical meaning of the spin projection operator</i>
14:00	–	14:30	Joan A. Vaccaro:	<i>The quantum theory of time: Sources of T violation</i>
14:30	–	14:50	Bryan Dalton:	<i>Bell non-locality in macroscopic systems</i>
14:50	–	15:10	Andrei Khrennikov:	<i>Getting rid of the nonlocality nonsense: Violation of the Bell's type inequalities as a local expression of incompatibility</i>
15:10	–	15:30	Luis de la Peña:	<i>Strong entanglement criterion based on momentum weak values</i>
15:30	–	17:00	Free time and transfer to National House	
17:00	–	22:00	<b>Evening session: Public lectures of Rainer Weiss, Wolfgang Ketterle and concert</b>	
<i>Location: National House of Vinohrady - Mayakovsky Hall</i>				
<i>(chairperson: Václav Špička, Wolfgang Schleich, Peter Keefe )</i>				
17:00	–	17:15	Music introduction and opening address	
17:15	–	18:30	Public lecture	
17:15	–	18:15	<b>Rainer Weiss:</b>	<i>The beginnings of gravitational wave astronomy</i>
18:15	–	18:30	Discussion after the lecture of Rainer Weiss	
18:30	–	19:00	Break	
19:00	–	20:15	Public lecture	
19:00	–	20:00	<b>Wolfgang Ketterle:</b>	<i>Cooling close to absolute zero temperature: A recipe for discoveries</i>
20:00	–	20:15	Discussion after the lecture of Wolfgang Ketterle	
20:15	–	20:30	Break	
20:30	–	22:00	<b>Concert of classical music</b>	

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## Thursday, 18 July 2019

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07:50 – 09:50 **1 session: Quantum physics and gravitation**

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*Location: Pyramida Hotel Lecture Hall*

*(chairperson: Michael Guidry)*

- 07:50 – 08:20 Wolfgang Schleich: *Quantum waves and gravity*  
08:20 – 08:50 Ernst Rasel: *Space-borne matter-wave interferences*  
08:50 – 09:20 Hartmut Abele: *Gravity resonance spectroscopy and the dark sector*  
09:20 – 09:50 Hansjoerg Dittus: *Quantum technology on GNSS*  
09:50 – 10:10 Coffee break

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10:10 – 12:10 **2 session: General physics**

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*Location: Pyramida Hotel Lecture Hall*

*(chairperson: Wolfgang Schleich)*

- 10:10 – 10:40 William D. Phillips: *The revolutionary changes to the International System of Units*  
10:40 – 11:10 Wolfgang Ketterle: *Ultracold atoms as quantum simulators for new materials – optical lattices and synthetic gauge fields*  
11:10 – 11:40 Rainer Weiss: *Quantum noise in LIGO*  
11:40 – 12:10 Theodor W. Hänsch: *From the Lamb dip to the proton radius puzzle*  
12:10 – 13:00 Lunch

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13:00 – 14:30 **3 session: Quantum optics**

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*Location: Pyramida Hotel Lecture Hall*

*(chairperson: Yuri Rostovtsev)*

- 13:00 – 13:30 Thomas Udem: *Challenging QED with atomic hydrogen*  
13:30 – 14:00 Olga Kocharovskaya: *Quantum optics with X-rays: Dynamical control of resonant interaction*  
14:00 – 14:30 Federico Capasso: *Metasurfaces: From flat optics to structured light*  
14:30 – 14:50 Break

14:50	–	16:20	<b>4 session: Foundations of physics</b>	
<i>Location: Pyramida Hotel Lecture Hall</i>				
<i>(chairperson: Andrew Jordan)</i>				
14:50	–	15:20	Gerard 't Hooft:	<i>Constructing deterministic models for quantum mechanical systems</i>
15:20	–	15:50	Stephen A. Fulling:	<i>Things we are still learning about uniform acceleration</i>
15:50	–	16:20	Marlan O. Scully:	<i>From Bose condensates to black holes: Tribute to Bogoliubov</i>
16:20	–	16:40	Coffee break	
16:40	–	19:00	<b>Round table discussion</b>	
<i>Location: Pyramida Hotel Lecture Hall</i>				
<i>(chairperson: Václav Špička, Wolfgang Schleich)</i>				
16:40	–	17:00	Opening	
17:00	–	17:30	Tribute to Marlan Scully	
17:30	–	19:00	Discussion: M. Scully, T. Hänsch, W. Ketterle, W. Phillips, G. 't Hooft, R. Weiss, and others	
19:00	–	20:00	Transfer to St. Vitus Cathedral	
20:00	–	21:10	<b>Concert of classical music</b>	
<i>Location: Prague Castle - St. Vitus Cathedral</i>				

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## Friday, 19 July 2019

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07:50 – 09:50 **1 session: Cold atoms out of equilibrium**

*Location: Pyramida Hotel Lecture Hall*

*(chairperson: Wolfgang Ketterle)*

07:50 – 08:20 Yoram Alhassid: *Precision thermodynamics of the cold atomic unitary Fermi gas*

08:20 – 08:50 Warwick Bowen: *Vortex dynamics in a strongly interacting two-dimensional superfluid*

08:50 – 09:20 Vanderlei S. Bagnato: *Out of equilibrium BEC: The quantum turbulence and characteristics*

09:20 – 09:50 Aurel Bulgac: *Real-time dynamics of fermionic superfluids: From cold atoms, to nuclei and neutron star crust*

09:50 – 10:10 Coffee break

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10:10 – 12:10 **2 session - A parallel: Physics of superfluids**

*Location: Pyramida Hotel Lecture Hall A*

*(chairperson: Vanderlei Bagnato)*

10:10 – 10:40 Björn Sothmann: *Odd-frequency superconductivity revealed by thermopower*

10:40 – 11:10 Linda E. Reichl: *Local and nonlocal shot noise in high-Tc superconducting nanowires*

11:10 – 11:40 Nir Navon: *Scale invariance in a turbulent quantum gas: Cascade front dynamics and non-thermal steady states*

11:40 – 12:10 Frédéric Chevy: *The  $2N+1$  body problem: An impurity immersed in a strongly correlated fermionic superfluid*

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10:10 – 12:10 **2 session - B parallel: Quantum phase transitions**

*Location: Pyramida Hotel Lecture Hall B*

*(chairperson: Yoram Alhassid)*

10:10 – 10:40 Sabine Andergassen: *Quantum phase transition with dissipative frustration*

10:40 – 11:10 Niels Lörch: *Divergence of predictive model output as indication of phase transitions*

11:10	–	11:40	Joseph Maciejko:	<i>Exotic quantum phase transitions in Dirac fermion systems</i>
11:40	–	12:10	Thomas Vojta:	<i>Integer quantum Hall transition on a tight-binding lattice</i>
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10:10	–	12:10	<b>2 session - C parallel: Nonequilibrium statistical physics</b>	
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<i>Location: Pyramida Hotel Lecture Hall C</i>				
<i>(chairperson: Takafumi Kita)</i>				
10:10	–	10:40	Ilya Sinayskiy:	<i>Prediction of the dissipative phase transition using machine learning techniques</i>
10:40	–	11:10	Doron Cohen:	<i>Chaos, irreversibility and Hamiltonian hysteresis</i>
11:10	–	11:40	Michael Galperin:	<i>Nonadiabatic molecular dynamics at surfaces and interfaces</i>
11:40	–	12:10	Rudolf Hilfer:	<i>Quantum probability theory and the arrow of time</i>
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10:10	–	12:10	<b>2 session - D parallel: Quantum transport, spin dynamics</b>	
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<i>Location: Pyramida Hotel Lecture Hall D</i>				
<i>(chairperson: Thierry Martin)</i>				
10:10	–	10:40	Yaroslav M. Blanter:	<i>Chiral excitations of spin waves in ferromagnetic films</i>
10:40	–	11:10	Branislav Nikolic:	<i>Multiscale quantum-classical micromagnetics: Fundamentals and applications in spintronics</i>
11:10	–	11:40	Jaroslav Fabian:	<i>Nonequilibrium spin phenomena in 2D materials</i>
11:40	–	12:10	Jonne V. Koski:	<i>Circuit quantum electrodynamics with quantum dot qubits</i>
12:10	–	13:00	Lunch	
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13:00	–	14:30	<b>3 session: Many body physics</b>	
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<i>Location: Pyramida Hotel Lecture Hall</i>				
<i>(chairperson: Pawel Danielewicz)</i>				
13:00	–	13:30	Eberhard K.U. Gross:	<i>Potential energy surfaces and Berry phases beyond the Born-Oppenheimer approximation</i>



13:30	–	14:00	James K. Freericks:	<i>The minimal effective Gibbs ansatz (MEGA): A quantum computing framework for determining many-body correlation functions at nonzero temperature</i>
14:00	–	14:30	Christian Glattli:	<i>A Josephson relation for <math>e/3</math> and <math>e/5</math> fractionally charged anyons</i>
14:30	–	14:50	Coffee break	
14:50	–	16:20	<b>4 session: Nonequilibrium physics</b>	
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<i>Location: Pyramida Hotel Lecture Hall</i>				
<i>(chairperson: Ortwin Hess)</i>				
14:50	–	15:20	Andrew Armour:	<i>Dynamics of many-body quantum synchronisation</i>
15:20	–	15:50	Petr Hořava:	<i>Topological quantum gravity of the Ricci flow</i>
15:50	–	16:20	Walter Pfeiffer:	<i>Attosecond dynamics in solids after photoexcitation as a benchmark for our understanding of complex quantum systems</i>
16:20	–	17:00	Free time and transfer to Strahov Monastery	
17:00	–	23:00	<b>Guided tour, conference dinner and concert</b>	
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<i>Location: Strahov Monastery</i>				
17:00	–	19:00	Guided tour through Strahov Monastery	
19:00	–	19:20	Welcome	
19:20	–	21:00	First part of the conference dinner	
21:00	–	22:00	Concert of classical music in the Basilica of Assumption of Our Lady	
22:00	–	23:00	Second part of the conference dinner	

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## Saturday, 20 July 2019

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08:30 – 10:00

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### 1 session: Quantum transport

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*Location: Pyramida Hotel Lecture Hall*

*(chairperson: David Sanchez)*

- 08:30 – 09:00 Denis Vion: *Quantum microwaves with a dc-biased Josephson junction*
- 09:00 – 09:30 Harold U. Baranger: *Nonequilibrium dissipative quantum dots: I-V curves and quantum critical points*
- 09:30 – 10:00 Daniel Esteve: *Hybrid spin-superconducting circuits for quantum technologies*

10:00 – 10:20 Break

10:20 – 11:50

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### 2 session: Thermodynamics, Nonequilibrium statistical physics

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*Location: Pyramida Hotel Lecture Hall*

*(chairperson: Federico Capasso)*

- 10:20 – 10:50 Ronnie Kosloff: *The quantum Carnot engine and the inertial theorem*
- 10:50 – 11:20 Jürgen T. Stockburger: *Implicit erasure: A universal paradigm of irreversibility*
- 11:20 – 11:50 Václav Špička: *Dynamics of open systems, fluctuation-dissipation theorems and quantum transport theory*

11:50 – 13:00 Lunch

13:00 – 14:30

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### 3 session: Many body physics

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*(chairperson: Joseph Maciejko)*

- 13:00 – 13:30 Vladimir Zelevinsky: *Physics of thermalization and level density in an isolated system of strongly interacting particles*
- 13:30 – 14:00 Takafumi Kita: *A renormalization-group study of interacting Bose-Einstein condensates: Absence of the Bogoliubov mode below  $d=4$  ( $T>0$ ) and  $d=3$  ( $T=0$ ) dimensions*
- 14:00 – 14:30 Michael Guidry: *On the critical temperature for the superconducting transition*

14:30 – 15:00 Cofee break

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15:00 – 16:30 **Apollo 11: Celebration of the 50th anniversary of the first Moon landing, July 20, 1969**

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*Location: Pyramida Hotel Lecture Hall  
(chairperson: Václav Špička, Peter Keefe)*

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16:30 – 17:00 **Closing remarks**

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*Location: Pyramida Hotel Lecture Hall  
(chairperson: Václav Špička)*