PROGRAM

Sunday, 24 July 2011

17:00 – 21:00 Registration and welcome refreshment

Location: Pyramida Hotel - lobby

Monday, 25 July 2011

08:00 – 8:30 **Opening addresses**

Location: Pyramida Hotel Lecture Hall

08:30 – 10:00 **1 session: Foundations of quantum mechanics**

Location: Pyramida Hotel Lecture Hall

08:30 – 09:00	Anton Zeilinger:	*Recent experiments with photons: Testing the foundations of quantum physics and developing new tools for quantum information*
09:00 – 09:30	Juerg Froehlich:	*Quantum friction and quantum Brownian motion*
09:30 – 10:00	Markus Aspelmeyer:	*How to extend quantum experiments to massive mechanical objects: Prospects and challenges*

10:00 – 10:20 Coffee break

10:20 – 12:00 **2 session: Foundations of quantum mechanics**

Location: Pyramida Hotel Lecture Hall

10:20 – 10:50	Gordon Baym:	*Two-slit diffraction with highly charged particles: Niels Bohr's consistency argument that the electromagnetic field must be quantized*
10:50 – 11:20	Kimball Milton:	*Thermal issues in Casimir forces between conductors and semiconductors*
11:20 – 11:40	Karl Hess:	*Hidden assumptions in proofs of Bell*
11:40 – 12:00	Theo Nieuwenhuizen:	*Dynamics in a model for quantum measurements and insight in the quantum measurement problem*

12:00 – 13:00 Lunch

13:00 – 15:00 **3 session: Foundations of quantum mechanics**

Location: Pyramida Hotel Lecture Hall

13:00 – 13:30	Ralf Schuetzhold:	*Fundamental quantum effects in the laboratory*

13:30	–	14:00	Ana María Cetto:	*Implications of radiative corrections for the particle-zeropoint field system: establishing contact with quantum electrodynamics*
14:00	–	14:30	Andrei Khrennikov:	*QM as theory of classical signals with noisy background*
14:30	–	15:00	Victor Flambaum:	*Evidence for spatial variation of the fine structure constant*
15:00	–	15:20	Coffee break	
15:20	–	17:00	**4 session: Quantum thermodynamics**	
			Location: Pyramida Hotel Lecture Hall	
15:20	–	15:50	Howard Wiseman:	*Quantum jumps in non-thermal-equilibrium systems: How far beyond Einstein do we need to go?*
15:50	–	16:20	Gershon Kurizki:	*Quantum engines via measurements on non-Markovian time scales*
16:20	–	16:40	Noam Erez:	*Thermodynamics of quantum measurements*
16:40	–	17:00	Lawrence Schulman:	*Non-thermodynamic behavior for non-ergodic interactions: Violation of the 0th law*
17:00	–	17:45	Free time and transfer to Wallenstein Palace	
17:45	–	19:30	Guided tour through Wallenstein Palace	
19:30	–	23:00	Welcome party in the Wallenstein Palace Garden	

Tuesday, 26 July 2011

08:00 – 10:00 **1 session: Physics of quantum computing**

Location: Pyramida Hotel Lecture Hall

08:00 – 08:30	Peter Zoller:	*Engineered dissipation for quantum information and many body physics*
08:30 – 09:00	Denis Vion:	*Towards hybrid quantum circuits: Strong coupling of a spin ensemble to a superconducting resonator*
09:00 – 09:20	Giuseppe Falci:	*Quantum coherence in nanofabricated three-level artificial atoms*
09:20 – 09:40	Amnon Aharony:	*Retrieving quantum qubit information despite decoherence*
09:40 – 10:00	Timothy C. Ralph:	*Relativistic quantum information*

10:00 – 10:20 Coffee break

10:20 – 12:00 **2 session: Quantum measurement, entanglement and coherence**

Location: Pyramida Hotel Lecture Hall

10:20 – 10:50	Barry Sanders:	*Efficient algorithm for optimizing adaptive quantum metrology processes*
10:50 – 11:20	Andrew Jordan:	*Precision measurements and weak values*
11:20 – 11:40	Alessandro Romito:	*Weak values in solid state systems: Charge sensing amplification and decoherence effects*
11:40 – 12:00	Elisabetta Paladino:	*Degradation and protection of entanglement between solid state qubits*

12:00 – 13:00 Lunch

13:00 – 15:20 **3 session - A parallel: Mesoscopic systems**

Location: Pyramida Hotel Lecture Hall

13:00 – 13:20	Frithjof Anders:	*Nonequilibrium Zeeman-splitting in quantum transport through nanoscale junctions*
13:20 – 13:40	Michael Galperin:	*Raman spectroscopy of molecular junctions*
13:40 – 14:00	Sense Jan van der Molen:	*Quantum interference in molecular junctions*
14:00 – 14:20	Fabio Taddei:	*Blockade and counterflow supercurrent in exciton-condensate Josephson junctions*

14:20	–	14:40	Avraham Schiller:	*From the adiabatic to the anti-adiabtic regime of phonon-assisted tunneling*
14:40	–	15:00	Frank Hekking:	*Circuit approach to photonic heat transport*
15:00	–	15:20	Rafael Sánchez:	*Transport from hot spots*

13:00 – 15:00 **3 session - B parallel: Quantum optics**

Location: Pyramida Hotel Cinema Hall

13:00	–	13:20	Joshua A. Slater:	*Broadband waveguide quantum memory for entangled photons*
13:20	–	13:40	Anil K. Patnaik:	*Ultrafast thermometry using quantum coherence*
13:40	–	14:00	Radim Filip:	*Quantum and semiclassical noiseless amplifier*
14:00	–	14:20	Jeremy Amstrong:	*Bound states in multilayers of cold polar molecules*
14:20	–	14:40	Mark Fox:	*Phonon damping and renormalization of Rabi oscillations in InGaAs quantum dots*
14:40	–	15:00	Howard Carmichael:	*Elastic light scattering from multi-level atoms: Ground-state quantum beats and evolution of coherence through quantum jumps*
15:20	–	18:30	Free time and transfer to St. Simon and Juda Church	

18:30 – 22:20 **Evening session: Public lecture of Martin Rees and concert**

Location: St. Simon and Juda Church

18:30	–	18:45	Music introduction and opening address	
18:45	–	20:00	Public lecture	
18:45	–	19:45	Martin Rees:	*From Big Bang to biospheres*
19:45	–	20:00	Discussion after the lecture of Martin Rees	
20:00	–	20:20	Break	
20:20	–	21:10	**Concert of classical music - first part**	
21:10	–	21:30	Break	
21:30	–	22:20	**Concert of classical music - second part**	

Wednesday, 27 July 2011

08:00 – 10:00 **1 session: Nonequilibrium quantum statistical physics**

Location: Pyramida Hotel Lecture Hall

08:00	–	08:30	Ulrich Weiss:	*Nonlinear quantum transport and noise statistics*
08:30	–	09:00	Yuli Nazarov:	*Flows of quantum information quantities*
09:00	–	09:30	Yoseph Imry:	*Slow relaxation and aging in the electron glass*
09:30	–	10:00	Tamar Seideman:	*Driven electrons in strong laser fields*
10:00	–	10:20	Coffee break	

10:20 – 12:00 **2 session - A parallel: Foundations of quantum mechanics**

Location: Pyramida Hotel Lecture Hall A

10:20	–	10:40	Kristel Michielsen:	*Testing the applicability of quantum theory to event-based processes*
10:40	–	11:00	Hans De Raedt:	*Towards a corpuscular event-by-event simulation of optical phenomena*
11:00	–	11:20	Luis de la Peña:	*Quantum nonlocality revisited from the point of view of a local stochastic theory*
11:20	–	11:40	Čestmír Šimáně:	*Mesic forces in quantum mechanics*
11:40	–	12:00	Miloš Lokajíček:	*Controversy between Einstein and Bohr after 75 years, its actual solution and the consequences for the present*

10:20 – 12:00 **2 session - B parallel: Mesoscopic systems**

Location: Pyramida Hotel Lecture Hall B

10:20	–	10:40	Andreas Wacker:	*Coherent tunneling and canyon of current suppression in quantum dots*
10:40	–	11:00	Jan von Delft:	*The 0.7-anomaly in quantum point contacts: Evidence for a Nozières' Fermi liquid*
11:00	–	11:20	Daniel Sheehan:	*Diodic electric fields in NEMS/MEMS devices: Toward a solid-state second law challenge*
11:20	–	11:40	Peter Keefe:	*Relaxation phenomena in the adiabatic phase transition of Type I superconductor particles*

11:40	–	12:00	Howard Brandt:	*Microcausality in quantum field theory*

10:20	–	12:00	**2 session - C parallel: Dissipation, noise and decoherence**

Location: Pyramida Hotel Conference Room 3

10:20	–	10:40	Andrew Armour:	*Noise properties of cavity-driven mechanical oscillations*
10:40	–	11:00	Tomáš Novotný:	*Inelastic effects on the electronic current noise through nanojunctions*
11:00	–	11:20	Lea Santos:	*Quantum chaos and thermalization in isolated many-body systems*
11:20	–	11:40	Andrei Zaikin:	*Persistent current noise and electron-electron interactions*
11:40	–	12:00	Francesco Petruccione:	*Open quantum random walks*
12:00	–	13:00	Lunch	

13:00	–	15:00	**3 session - A parallel: Nonequilibrium quantum statistical physics**

Location: Pyramida Hotel Lecture Hall A

13:00	–	13:20	James Freericks:	*Theory of time-resolved photoemission spectroscopy*
13:20	–	13:40	Peter Schmitteckert:	*Transport in and through correlated nanostructures: A density matrix renormalization group perspective*
13:40	–	14:00	Claudio Verdozzi:	*TDDFT and Green's function dynamics for strongly correlated model systems*
14:00	–	14:20	Bozidar Novakovic:	*Transient-regime transport in nanostructures*
14:20	–	14:40	Václav Špička:	*Fast dynamics of molecular bridges*
14:40	–	15:00	Bedřich Velický:	*Vibronic effects in transient behavior of molecular bridges*

13:00	–	15:00	**3 session - B parallel: Mesoscopic systems**

Location: Pyramida Hotel Lecture Hall B

13:00	–	13:20	Joachim Ankerhold:	*Optimal control of open quantum systems in non-Markovian environments*
13:20	–	13:40	Fabrice Debbasch:	*Continuous limit of discrete time quantum walks*

13:40	–	14:00	Dragos Victor Anghel:	*A new paradigm to describe mesoscopic systems by employing fractional exclusion statistics*
14:00	–	14:20	Sigmund Kohler:	*Graphene ratchets*
14:20	–	14:40	Jerzy Łuczka:	*Indirect control of anomalous transport in a system of two coupled Brownian particles*
14:40	–	15:00	Jiří J. Mareš:	*Quantum thermostatics and generalization of Wien's law*

13:00 – 15:00 **3 session - C parallel: Spins systems, cold atoms, quantum optics**

Location: Pyramida Hotel Conference Room 3

13:00	–	13:20	Gilles Montambaux:	*Engineering of Dirac cones in two-dimensional crystals*
13:20	–	13:40	Thomas Schmidt:	*Spin-charge separation in one-dimensional fermion systems beyond Luttinger liquid theory*
13:40	–	14:00	Jorge Dukelsky:	*Phase diagram of the integrable px+ipy fermionic superfluid*
14:00	–	14:20	Alexander Altland:	*Anderson transition in the cold atom kicked rotor*
14:20	–	14:40	Norbert Kroo:	*Some novelties in nonlinear plasmonics*
14:40	–	15:00	Yuri Rostovtsev:	*Mechanism of anomalous heating of trapped ions*

15:00 – 15:20 Coffee break

15:20 – 17:00 **4 session - A parallel: Physics of quantum computing**

Location: Pyramida Hotel Lecture Hall A

15:20	–	15:40	Jens Koch:	*Superconducting qubits grow up: Quantum coherence in circuits with many degrees of freedom*
15:40	–	16:00	Alex Retzker:	*Quantum computing with magnetic insensitive states*
16:00	–	16:20	Robert O'Connell:	*Entanglement and coherence: Differences and similarities*
16:20	–	16:40	Igor Pikovski:	*Probing the canonical commutator of massive mechanical oscillators*
16:40	–	17:00	Christoph Bruder:	*Quantum control of interacting qubits*

15:20 – 17:00 **4 session - B parallel: Spin systems, dissipation and noise**

Location: Pyramida Hotel Lecture Hall B

15:20	–	15:40	Ora Entin-Wohlman:	*Spin-polarized electric currents in quantum transport*
15:40	–	16:00	Vadim Cheianov:	*Statistical mechanics of magnetic impurities on graphene*
16:00	–	16:20	Doron Cohen:	*Quantum vs stochastic non-equilibrium steady state of driven systems*
16:20	–	16:40	Boris Fine:	*Emergence of non-thermal statistics in isolated many-particle quantum systems after multiple perturbations*
16:40	–	17:00	Eugene Sukhorukov:	*Energy relaxation at the quantum Hall edge*

15:20 – 17:00 **4 session - C parallel: Cosmology, gravitation and astrophysics**

Location: Pyramida Hotel Conference Room 3

15:20	–	15:40	Rudy Schild:	*Observations of Black Holes show the possibility of a widely separated accretion disk*
15:40	–	16:00	Fumio Abe:	*MOA II gravitational microlensing survey*
16:00	–	16:20	Hao Liu:	*Systematical effects in WMAP data and looking forward to the Planck data release*
16:20	–	16:40	Carl H. Gibson:	*Hydro-gravitational-dynamics of the cosmological big bang and the biological big bang*
16:40	–	17:00	Nalin Wickramasinghe:	*Biology: A cosmological constraint?*

17:00 – 20:00 **Poster session**

Location: Pyramida Hotel - first floor

17:00 – 20:00 Refreshment

20:00 – 23:00 **Jazz concert**

Location: Pyramida Hotel Cinema Hall

Thursday, 28 July 2011

08:00 – 10:00 **1 Session: Quantum optics**

Location: Pyramida Hotel Lecture Hall

08:00	–	08:30	Immanuel Bloch:	*Controlling and imaging quantum gases at the single atom level*
08:30	–	09:00	Thomas Udem:	*A phonon laser*
09:00	–	09:30	Gerd Schön:	*Lasing and transport in a quantum dot-resonator circuit*
09:30	–	10:00	Helmut Rauch:	*Hadron interferometry with neutrons*

10:00 – 10:20 Coffee break

10:20 – 12:00 **2 session: Macroscopic quantum behaviour and cold atoms**

Location: Pyramida Hotel Lecture Hall

10:20	–	10:50	Linda Elizabeth Reichl:	*Relaxation processes in a Bose-Einstein condensate*
10:50	–	11:20	Fernando Sols:	*Quantum transport of cold atoms*
11:20	–	11:40	Eric Akkermans:	*Bose-Einstein condensation, Casimir forces and quantum optics on fractal structures*
11:40	–	12:00	Stephanie Reimann:	*Dipolar quantum gases from a few-body perspective*

12:00 – 13:00 Lunch

13:00 – 15:00 **3 session: Macroscpic quantum behaviour, interference, dissipation and noise**

Location: Pyramida Hotel Lecture Hall

13:00	–	13:30	Pascal Simon:	*Bose Fermi mixture in a disordered one dimension potential: The Bose Fermi glass*
13:30	–	14:00	Gregor Weihs:	*Multi-order interference and Born's rule*
14:00	–	14:30	Wolfgang Belzig:	*Quasiprobability and quantum paradoxes in electronic counting statistics*
14:30	–	15:00	Moty Heiblum:	*Observation of 'neutral modes' in the QHE regime via shot noise measurements*

15:00 – 18:30 Free time and transfer to Rudolfinum

18:30	–	21:40	**Evening session: Public lecture of Claude Cohen-Tannoudji and concert**

Location: Rudolfinum - Dvořák's Hall

18:30	–	18:45	Music introduction and opening address
18:45	–	20:00	Public lecture
18:45	–	19:45	Claude Cohen-Tannoudji: *Laser manipulation of atoms*
19:45	–	20:00	Discussion after the lecture of Claude Cohen-Tannoudji
20:00	–	20:20	Break
20:20	–	21:40	**Concert of classical music**

Friday, 29 July 2011

08:00 – 10:00 **1 session: Spin systems and their dynamics**

Location: Pyramida Hotel Lecture Hall

08:00 – 08:30	Yoram Alhassid:	*The coexistence of superconductivity and ferromagnetism in nanoscale metallic grains*
08:30 – 09:00	Dietrich Belitz:	*Phases, broken symmetries, and Goldstone modes in helical magnets*
09:00 – 09:20	Ted Kirkpatrick:	*Generic non-Fermi-liquid behavior in metallic helimagnets*
09:20 – 09:40	Thomas Vojta:	*Anomalously elastic, intermediate phase in randomly layered superfluids, superconductors, and planar magnets*
09:40 – 10:00	Branislav K. Nikolic:	*Spin pumping in magnetic tunnel junctions and topological insulators: Theory and experiment*

10:00 – 10:20 Coffee break

10:20 – 12:00 **2 session: Non-equilibrium statistical physics**

Location: Pyramida Hotel Lecture Hall

10:20 – 10:50	Miguel Rubi:	*Mesoscopic non-equilibrium thermodynamics*
10:50 – 11:20	Udo Seifert:	*Optimization in stochastic thermodynamics: Efficiency of nano-machines (at maximum power)*
11:20 – 11:40	Eric Lutz:	*Nonequilibrium entropy production for open quantum systems*
11:40 – 12:00	Jens Eisert:	*Relaxation, thermalization, and a quantum algorithm to prepare Gibbs states*

12:00 – 13:00 Lunch

13:00 – 15:00 **3 session: Non-equilibrium statistical physics**

Location: Pyramida Hotel Lecture Hall

13:00 – 13:30	Pawel Danielewicz:	*Advancing quantum transport for nuclear reactions*

13:30	–	14:00	Stefano Sanvito:	*Electron transport in large systems including fluctuating environment and many body effects*
14:00	–	14:30	Antti-Pekka Jauho:	*Heat conduction in nanostructured graphene*
14:30	–	15:00	Dietrich Kremp:	*Bound states in non-equilibrium statistical physics*
15:00	–	15:20	Coffee break	

15:20 – 17:20 **4 session: Quantum measurement, entanglement and coherence**

Location: Pyramida Hotel Lecture Hall

15:20	–	15:50	Dirk Bouwmeester:	*Towards quantum superpositions of a mirror*
15:50	–	16:20	Paul G. Kwiat:	*Finding hidden entanglement*
16:20	–	16:40	Julien Laurat:	*Quantum-to-classical transition of single-photon counters*
16:40	–	17:00	Jean-Daniel Bancal:	*Device independent witnesses for genuine multipartite entanglement*
17:00	–	17:20	Bruno Sanguinetti:	*Can one see entanglement?*
17:20	–	18:30	Free time and transfer to Prague Castle	

18:30 – 24:00 **Conference dinner and concert**

Location: Prague Castle - Vikárka Restaurant and St. Vitus Cathedral

18:30	–	20:30	First part of the conference dinner
20:30	–	21:50	**Concert in St. Vitus Cathedral**
21:50	–	24:00	Second part of the conference dinner

Saturday, 30 July 2011

08:00 – 10:00 **1 session: Biological systems, molecular motors**

Location: Pyramida Hotel Lecture Hall

08:00 – 08:30	Andrew White:	*Simulating quantum systems in biology, chemistry and physics*
08:30 – 09:00	Stefan Klumpp:	*Mechanisms and economy of molecular machines*
09:00 – 09:30	Hans Frauenfelder:	*Quasielastic spectra in the Mössbauer effect and neutron scattering*
09:30 – 10:00	Michael Bonitz:	*Strongly correlated few-fermion systems: From equilibrium properties to ultrafast dynamics*

10:00 – 10:20 Coffee break

10:20 – 12:00 **2 session: Foundations of quantum mechanics, macroscopic quantum behavior**

Location: Pyramida Hotel Lecture Hall

10:20 – 10:50	Arkady Plotnitsky:	*What is quantum field theory, technologically, mathematically, and philosophically?*
10:50 – 11:20	Raymond Y. Chiao:	*Generation of gravitational radiation via superluminal quantum mass currents*
11:20 – 11:40	Stephen J. Minter:	*Using macroscopic discontinuities in magnetic susceptibility within a loop of type-II superconducting wire to measure global decoherence rate*
11:40 – 12:00	Jeff Steinhauer:	*Realization of a sonic black hole analog in a Bose-Einstein condensate*

12:00 – 13:00 Lunch

13:00 – 14:20 **3 session: Patent law, mesoscopic systems**

Location: Pyramida Hotel Lecture Hall

13:00 – 13:20	William Blackman:	*International intellectual property issues of concern to scientists*
13:20 – 13:50	Yaroslav M. Blanter:	*Backaction and self-oscillations in nanomechanical systems*

13:50 – 14:20 Aashish Clerk: *Full counting statistics of phonon and photon shot noise fluctuations*

14:20 – 15:20 **Round table**

Location: Pyramida Hotel Lecture Hall

15:20 – 15:30 **Closing address**

Location: Pyramida Hotel Lecture Hall

16:00 – 19:00 Guided tour through Prague