

Quantum Physics of Phase

April 23-26, 2012,
Albanova, Roslagstullsbacken 21, Stockholm

Monday, April 23 in room FB42:

9:00 – 9:25 Registration and coffee, main corridor, level 3

Session I – Chairman – Jukka Pekola

9:25 – 9:30 Welcome – David Haviland

9:30 – 10:15 **Dima Averin** "Feedback suppression of noise by low-frequency quantum measurements"

10:15 – 10:45 **Simon Gustafsson** "Noise characterization and mitigation by dynamical decoupling with a superconducting qubit"

10:45– 11:15 *Coffee break*

11:15 – 12:00 **Alexander Shnirman** "Decoherence in adiabatic quantum evolution: application to Cooper pair pumping"

12:00 – 12:30 **Stefano Pugnetti** "Floquet theory of Cooper pair pumping"

12:30 – 14:00 *Lunch*

Session II – in Honor of Mikko Paalanen, Chairman – David Haviland

14:00 – 14:45 **Bob Willett** "2D electron system non-Abelian excitations & topological quantum computation"

14:45 – 15:30 **Laurent Levy** "A Hall-insulating phase in HgTe 3D topological insulators"

15:30 – 16:00 *coffee break*

16:00 – 16:45 **Phil Adams** "From Non-Degenerate Electron Gases to the Superconductor-Insulator Transition: Adventures in Electron Localization"

16:45 – 17:15 **Jukka Pekola** - "Dissipated work and fluctuation relations in driven tunneling"

18:30 - *Banquet at Wärdshuset Kräften. Address: Kräftriket 9B*

Tuesday, April 24 in room FB42:

Session III – Chairman – Vladimir Krasnov

9:00 – 9:45 **John Martinis**- "Design of a quantum computer"

9:45 – 10:30 **Michel Devoret** - "Continuous measurement of a qubit using a Josephson parametric amplifier"

10:30 – 11:00 *Coffee break*

9:00 – 9:45 **Yuval Gefen** "Berry Phase and non-Abelian Spin in Quantum Dots"

11:45 – 12:30 **Rosario Fazio** - "Geometric phase kickback in a qubit-oscillator system"

12:30 – 14:00 *Lunch*

Session IV – Chairman – Tord Claeson

14:00 – 14:45 **Yuli Nazarov** "Synchronization of Bloch and Josephson"

14:45 – 15:30 **Hans Mooij** "Quantum phase slip in metallic nanowires"

15:30 – 16:00 *Coffee break*

16:00 – 16:45 **Oleg Astafiev** "Experimental demonstration of coherent quantum phase slip"

16:45 – 17:30 **Alexander Zorin** "Single-charge transistor based on superconducting nanowire"

17:30 – 18:30 **Poster Session** with drinks and snacks

18:30 - Buffet dinner at Albanova

Wednesday, April 25 in Room FB42:

Session V – Chairman Mats Jonson

9:00 – 9:30 **Roland Schäfer** "Long Josephson junction chains in the transition region from charge to phase regime"

9:30 – 10:00 **David Haviland** "Coherent and incoherent quantum phase slips in Josephson junction chains"

10:00 – 10:30 **Jack Lidmar** "Quantum phase slips in superconducting nanowires Josephson junction chains"

10:30 – 10:45 *Coffee break*

10:45 – 11:15 **Ville Maisi** "Quasiparticle excitations in SINIS and NISIN transistors"

11:15 – 11:45 **Sergey Lotkhov** "A hybrid superconductor-normal metal electron trap as a photon detector"

11:45 – 12:30 **Yuri Pashkin** - "Coherent and incoherent charge pumping with Coulomb blockade devices"

12:30 – 14:00 Lunch

Session VI – Chairman Göran Wendin

14:00 – 14:45 **Fabien Portier** "generation of non classical radiation by a Josephson junction in the dynamical Coulomb blockade regime"

14:45 - 15:15 **Göran Johansson** "Theory of the dynamical Casimir effect in superconducting circuits"

15:15 – 16:00 **Per Delsing** "Experiments on dynamical Casimir effect and photon routing"

16:00 *Coffee and Sandwich*

16:00 – 18:00 Closed meeting for evaluation of SCOPE
Closed meeting for GEOMDISS project

No evening program. Enjoy Stockholm!

Thursday, April 26 in Room FD55 – Svedberg Hall:

Session VII – Chairman Hans Hansson

11:00 – 11:45 **Jurgen König** - "Superconducting Proximity Effect in Quantum-Dot Systems"

9:45 – 10:30 **Stefan Fillip** - "Measurement of geometric phases in the circuit QED architecture"

10:30 – 11:00 *Coffee break*

11:00 – 11:30 **Jonas Larsson** "On the rotating wave approximation in the adiabatic limit"

11:30 – 12:00 **Thilo Bauch** "Phase dynamics in HTS nano wires"

Closing remarks

12:00 – Lunch

Posters:

Phil Meeson "Exploitation of Josephson Bifurcation Amplifiers"

Stephan Rojek "Adiabatic pumping through an interacting quantum dot with spin-orbit coupling"

Samira Nik "Effect of Oxidation Time and Pressure on the Microstructure of Al/AlO_x/Al Tunnel Junction"

Lunhie Zeng "Transmission electron microscopy study of the evolution of the structure of AlO_x"

Olli-Pentti Saira "Test of Jarzynski and Crooks fluctuation relations in an electronic system"

Vladimir Krasnov "Abrikosov vortex as a phase battery"

Lars Tornberg "Undoing measurement-induced dephasing in circuit QED"

Adem Ergul "Phase slips in SQUID transmission lines"

Andreas Ryhd "Differential membrane-based nanocalorimeter for high-resolution measurements of low-temperature specific heat"

Andreas Andersson "Modeling and simulations of quantum phase slips in superconducting nanowires"

Kyle Sundqvist "A Linearized Model of a Flux-Driven DC-SQUID for use as a Negative-Resistance Parametric Amplifier"

Fernanda Pinheiro "Delocalization and superfluidity of Bose-Einstein condensates of atomic gases"

Mikael Kardell Fremling "Exclusion statistics in the Tau-Thouless limit"

Thomas Kvorning "Quantum Hall wave functions on curved surfaces"

Holger Motzkau "Size-dependent transformation from triangular to rectangular fluxon lattice in Bi-2212 mesa structures"

Notes:

- All sessions Monday – Wednesday will be held in Albanova Room FB42.
- Thursday morning session will be held in Albanova, Room FD5 – Svedberg Hall.
- Coffee breaks and the Poster mingle will be in the main corridor, level 3.
- All lunches will be the standard cafeteria lunch at Albanova. You will be provided with a voucher for the lunches when you register.
- The Banquet will be at the restaurant "Kräftan", which has the street address "Kräftriket 9B". There is a separate sheet with instructions on how to get there from your hotel using the public bus system. If you would like to walk there (10 minutes from Albanova), we will depart at 18:15 from the main entrance hall on the 5th floor.
- The buffet dinner on Tuesday evening will be held at Albanova in the main corridor, level 2.