

## Preliminary program

### Saturday June 21

18.00–21.00 Registration and welcome party

### Sunday June 22

8.30–9.15 Registration

9.15–9.30 Opening (Igor Lerner/Nikita Averkiev)

#### **Morning session: Superconducting coherent devices – 1**

9.30–10.00 Jukka Pekola, Energy fluctuations and Maxwells demon in a single-electron circuit

10.00–10.30 Patrice Bertet, Towards a spin-ensemble quantum memory for superconducting qubits

Coffee break

11.00–11.30 Andreas Wallraff, Quantum Optics with Microwave Photons

11.30–12.00 Lev Ioffe, TBA

12.00–12.30 Jürgen Lisenfeld, Probing coherence of atomic-sized defects using a superconducting qubit

(Lunch break)

#### **Afternoon session 1: Majorana fermions**

14.30–15.00 Yuval Oreg, Fractional Majoranas and the Wires' approach for Fractional Topological Insulators

15.00–15.30 Attila Geresdi, Towards complex Majorana devices

15.30–16.00 Benjamin Beri, Topological Kondo effect with Majorana fermions

Coffee break

#### **Afternoon session 2: Coherent devices**

16.30–17.00 David DiVincenzo, Hall effect gyrators and circulators

17.00–17.30 Mikhail Kiselev, Self-sustained oscillations in nanoelectromechanical systems induced by Kondo resonance

17.30–18.00 Eugene Demler, TBA

### Monday June 23

#### **Morning session: Superconducting wires and phase slips**

9.00–9.30 Alexey Bezryadin, Cotunneling of quantum phase slips in superconducting nanowires

9.30–10.00 Alexander Shnirman, Flux noise in 2D Heisenberg spin glasses: Effect of weak anisotropic interactions

10.00–10.30 Oleg Astafiev, Coherent quantum phase slips in superconducting nanowires

Coffee break

11.00–11.30 Konstantin Arutyunov, Quantum fluctuations in quasi-1D superconductors: Physics and applications

11.30–12.00 Lara Faoro, TBA

12.00–12.30 Dimitri Gangardt, Kinetics of mobile impurities and dynamical correlations in one-dimensional superfluids at finite temperature

(Lunch break)

#### **Afternoon session 1: Quantum wires**

14.30–15.00 Andrey Rogachev, Superconductor-insulator transition in long nanowires

15.00–15.30 Dmitry Aristov, Y-junction of Luttinger liquid wires – What can we learn in S-matrix approach

15.30–16.00 Vadim Khrapai, Counter-propagating quantum Hall edge channels as a model Luttinger liquid system

Coffee break

#### **Afternoon session 2: Topological insulators**

16.30–17.00 Leonid Golub, Nonlinear transport effects in topological insulators

17.00–17.30 Igor Gornyi, Tunneling spectroscopy near Anderson transitions with Coulomb interaction

17.30–18.00 Valentin Kachorovskii, Interference-induced magnetoresistance in HgTe quantum wells

## **Tuesday June 24**

### **Morning session: Spin phenomena**

9.00–9.30 Hannes Majer, Hybrid quantum systems – coupling color centers to superconducting cavities

9.30–10.00 Reinhold Egger, Orbital ferromagnetism of interacting electrons in Rashba quantum dots

10.00–10.30 Alexey Akimov, Toward industry suitable spin-photon interface based on NV center

Coffee break

11.00–11.30 Roman Pisarev, Coherent frequency conversion processes in semiconductors due to the spin degree of freedom

11.30–12.00 Jörg Wrachtrup, Quantum assisted metrology using diamond spin probes

12.00–12.30 Boris Narozhny, Spinful Fermionic ladders at incommensurate filling

(Lunch break, followed by **excursion and conference dinner**)

## **Wednesday June 25**

### **Morning session: Circuit QED and quantum measurements**

9.00–9.30 Alexandre Blais, Perfect squeezing by damping modulation in circuit quantum electrodynamics

9.30–10.00 Arkady Fedorov, Photon-mediated interactions between distant artificial atoms

10.00–10.30 Alessandro Bruno, Superconducting coplanar-waveguide resonators for 2D circuit QED with intrinsic quality factors exceeding one million in the quantum regime

Coffee break

11.00–11.30 Alessandro Romito, Weak measurement of cotunneling time

11.30–12.00 Pascal Macha, Implementation of a quantum metamaterial

12.00–12.30 Nicolas Didier, Non-linear interaction effects in a strongly driven optomechanical cavity

(Lunch break)

### **Afternoon session: Spin-orbit interaction and topological phases**

14.30–15.00 Klaus Ensslin, Insulating state and giant non-local response in an InAs/GaSb quantum well in the quantum Hall regime

15.00–15.30 Karin Michaeli, Signature of topological superconductivity in quantum spin

Hall/superconductor Josephson junctions

15.30–16.00 Leo Radzihovsky, Critical transport in weakly disordered semiconductors and semimetals

16.00–16.30 Lieven Vandersypen, Electron spin read-out and control in GaAs and Si quantum dots

Coffee break

17.00–19.00 **Poster session**

## **Thursday June 26**

### **Morning session: Nanostructures**

9.00–9.30 Alexei Koudinov, In-plane anisotropy of semiconductor nanostructures revealed by the angular harmonics of the photoluminescence polarization

9.30–10.00 Vladimir Yudson, Localization of helical edge electrons in a 2D topological insulator

10.00–10.30 Sam Carr, Full counting statistics in the not-so-long time limit

Coffee break

11.00–11.30 Ivan Protopopov, Kinetics in dispersive Luttinger liquids: Bose-Fermi duality

11.30–12.00 Eduard Deviatov, Current-induced magnetization dynamics at the edge of a two-dimensional electron system with strong spin-orbit coupling

12.00–12.30 Anton Burkov, Topological response of Weyl semimetals and metallic ferromagnets

(Lunch break)

### **Afternoon session: 2D systems**

14.30–15.00 Christian Schönenberger, Optics with ballistic electrons in suspended monolayer graphene

15.00–15.30 Pavel Ostrovsky, Density of states in a two-dimensional chiral metal with vacancies

15.30–16.00 Eugene Polzik, Monitoring motion of a nano-oscillator beyond the standard quantum limit

Coffee break

### **Afternoon session 2: Superconducting coherent devices – 2**

16.30–17.00 Nadav Katz, TBA

17.00–17.30 Yuri Makhlin, Josephson bifurcation readout and higher harmonics

17.30–18.00 Patrice Roche, Robustness of quantum coherence above the Fermi sea

18.00–18.15 Closing remarks

## **Friday June 27**

Free discussion, departure

### Poster contributions

1. Ivan Ado, Weak localization correction to Hall resistivity for massive Dirac fermions
2. Yaroslav Beltukov, Spectral density of resonances in random LC-networks with fluctuating entries
3. Vladimir Butko, Bounded Bose Einstein condensation as the main mechanism of superconductivity
4. Denis Chevallier, Majorana and Andreev bound states in topological wires in the proximity of superconductors
5. Jared Cole, Correlated transport in Josephson junction arrays: Bridging the gap between theory and experiment
6. Zhanna Devizorova, Effect of heterointerface on spin splitting of two dimensional electron states in asymmetric GaAs/Al<sub>x</sub>Ga<sub>1-x</sub>As quantum well
7. Charles Downing, Zero-energy states in a trapping potential and magnetic flux in two-dimensional Dirac-Weyl materials
8. Timothy DuBois, Microscopic origins of two-level defects in Josephson junctions via atomic delocalization
9. Mikhail Durnev, Fine structure of Dirac states in HgTe quantum wells
10. Anna Feshchenko, Normal-metal / insulator / superconductor junction as a thermometer down to 4 mK
11. Anna Feshchenko, Experimental realization of a Coulomb gap refrigerator
12. Aleksei Frolov, Nanoperforated graphene: Production, structure, and electric properties
13. Alexander Germanenko, Interference quantum correction to conductivity in mercury telluride quantum wells
14. Pavel Golovinski, Exciton transfer in quantum dots with control by the Stark effect
15. Jörg Benedict Gramich, Optimized fabrication and characterization of carbon nanotube spin-valve devices
16. Vladimir Gurtovoi, A new superconducting interferometric phase detector of quantum states
17. Vladimir Gurtovoi, Investigation of quantum states self-detection in superconducting rings with asymmetric contacts
18. Nikolaos Kainaris, On the frequency dependence of the conductivity of a generic helical liquid
19. Ning Kang, Coherent charge transport in MBE-grown InSb nanowire
20. Eslam Khalaf, Anderson localization at the edge of a 2D topological insulator
21. Oleh Klochan, Probing the coupling between holes and nuclear spins in GaAs using a Landau level diode
22. Jonne Koski, Entropy production and Maxwell demon in single-electron devices
23. Aleksey Kozikov, Shaping potential landscapes for coherent electron transport with a scanning gate
24. Tatiana Krishtop, Nonlocal spin-polarized transport and spin relaxation length in hybrid structures ferromagnetic/superconductor in the presence of magnetic field
25. Nikolai Mikhailin, Magnetic properties of lead-porous glass superconducting nanocomposites with various mean pore size
26. Grigory Minkov, Weak antilocalization in HgTe well with Dirac-like spectrum at gigantic spin-orbit splitting
27. Grigory Minkov, Lateral p-n junction in HgTe quantum wells with inverted and "normal" spectrum: Role of edge states
28. Valentin Nikolaev, Interplay between homogeneous and inhomogeneous broadening in ensembles of silicon nanocrystals
29. Patrice Roche, Non classical radiation emitted by a Josephson junction
30. Olli-Pentti Saira, Radio-frequency electron thermometry at the nanoscale down to 100 mK
31. Andrey Sherstobitov, The energy relaxation rate of two dimensional electrons and holes in HgTe structures
32. Sebastian Skacel, Quantum phase-slip in superconducting nanowire arrays
33. Tom Stace, Cross-Kerr non-linearities for quantum non-demolition measurement of microwave photons
34. Natalia Stepina, Control of spin relaxation by special arrangement of Ge/Si quantum dots
35. Evgeny Tikhonov, Experimental study of shot noise due to electron-electron scattering in a ballistic Sharvin contact
36. Nicholas Vogt, Switching between Coulomb blockade and transport behavior in disordered Josephson junction arrays
37. Vladimir Volkov, Non-local branches of magnetoplasmons and nonlinear response of 2D electron system
38. Philip Wollfarth, Full counting statistics of energy dissipated by a driven two level system
39. Andrey Zabolotnykh, Cyclotron parametric resonance in microwave-irradiated two-dimensional electron system
40. Igor Zagorodnev, Do surface and edge states of topological insulators always exist in bulk gap?
41. Michael Zudov, Strongly anisotropic transport in p-type Ge/SiGe quantum well induced by high in-plane magnetic fields
42. Michael Zudov, Microwave photoresistance in Al<sub>x</sub>Ga<sub>1-x</sub>As/Al<sub>0.24</sub>Ga<sub>0.76</sub>As quantum wells
43. Alexander Zyuzin, Chiral surface states of electromagnetic field in Weyl semimetals