nanoQT-2016 PROGRAM

All sessions take place in the Conference Hall at Vasylkivska str. 36.

Registration desk will be open
16:00-20:00 on Friday, Oct. 7 – in the main entrance lobby at Vasylkivska str. 36
09:00–12:00 on Saturday & Sunday (Oct. 8-9) – in the anteroom of the Conference Hall
09:00-12:00 on Monday (Oct. 10) - in the anteroom of the Conference Hall

Saturday, October 8

9:50 - 10:00 Opening address

Session Chairperson: Yaroslav Tserkovnyak

10:00 - 11:15 Justin Song (Nanyang Technological University, Singapore)
          Berry phase and Berry curvature in solids
11:15-12:30 Boris Ivanov (Institute of Magnetism, Kyiv)
          Nonlinear spin dynamics in antiferromagnets: sigma-model approach
12:30-14:30 Lunch
14:30-15:45 Mark Rudner (Copenhagen University)
          Periodically driven quantum systems
15:45-16:15 Victor Vakaryuk (Associate Editor, PRB)
          Physical Review B: An inside look

Sunday, October 9

Session Chairperson: Leonid Levitov

10:00 - 11:15 Bertrand Halperin (Harvard University)
          Zero-energy Majorana modes in condensed matter systems
11:15-12:30 Jairo Sinova (University of Mainz)
          Spin Hall effect and spin-orbit torques
12:30-14:30 Lunch
14:30-15:00 Janne Salo (Project Officer, ERC panel “Condensed matter physics”)
          The European Research Council: funding opportunities
15:00-16:30 Andrey Varlamov (University Tor Vergata, Rome)
          Physics in the kitchen
Monday, October 10

**Session Chairperson: Bertrand Halperin**

9:00-9:40       **Jairo Sinova** (University of Mainz)
                 Antiferromagnetic spintronics: from Neel spin-orbit torques to Dirac physics

9:40-10:20      **Oleksandr Serha** (University of Kaiserslautern)
                 Spin Transport Using Magnon Gases

10:20-10:40 Coffee break

10:40-11:20     **Klaus Ensslin** (ETH Zürich)
                 Experimental Evidence for the Topological Insulator Phase in InAs/GaSb Coupled Quantum Wells

11:20-12:00     **Andrey Varlamov** (University Tor Vergata, Rome)
                 Fluctuoscropy of superconductors

12:00-14:00 Lunch

**Session Chairperson: Daniel Loss**

14:00-14:40     **Gerrit Bauer** (Tohoku University & TU Delft)
                 Spin(calori)tronics of magnetic insulator | metal bilayers

14:40-15:20     **Mark Rudner** (Copenhagen University)
                 Universal chiral quasi-steady states in periodically driven many-body systems

15:20-15:40 Coffee break

15:40-16:00     **Katsuyoshi Komatsu** (Tokyo Institute of Technology)
                 Hofstadter's buttefly and valley Hall effect in ballistic hBN/graphene/hBN heterostructures

16:00-16:20     **Olga A. Ilinskaya** (Inst. Low Temp. Physics & Eng, Kharkiv)
                 Shuttling of spin-polarized electrons in a single-molecule transistor

16:20-16:40     **Michael Beconcini** (Scuola Normale Superiore, Pisa)
                 Scaling approach to tight-binding transport in realistic graphene devices: the case of transverse magnetic focusing

16:40-17:00     **Mykola Dvornik** (University of Gothenburg)
                 Micromagnetic simulations beyond Landau-Lifshitz-Gilbert model

17:00-17:20     **Oleg E. Raichev** (Institute of Semiconductor Physics, Kyiv)
                 Acoustic magnetophonon oscillations

17:20-17:40     **Dario Ferraro** (Aix-Marseille University)
                 Unconventional electron quantum optics in condensed matter systems

17:40-19:00     **Poster Session #1** (drinks served on premises)
Tuesday, October 11

Session Chairperson: Valeriy Gusynin

9:00-9:40 Daniel Loss (University of Basel)
From Majorana to Para-Fermions in coupled Nanowires

9:40-10:20 Bertrand Halperin (Harvard University)
Spin Superfluidity and Graphene in a Strong Magnetic Field

10:20-10:40 Coffee break

10:40-11:20 Mircea Trif (LPS Orsay)
Cavity quantum electrodynamics with quantum dots and topological superconductors

11:20-12:00 Takis Kontos (ENS Paris)
Cavity quantum electrodynamics with carbon nanotubes: from atomic-like systems to condensed matter.

12:00-14:00 Lunch

Session Chairperson: Gerrit Bauer

14:00-14:40 Olena Gomonay (University of Mainz)
Ferro- versus antiferromagnetic spintronics: what’s common, what’s different

14:40-15:20 Rembert Duine (University of Utrecht)
Magnon dynamics and transport in insulating ferromagnets and spinor Bose gases

15:20-15:40 Coffee break

15:40-16:00 Benedetta Flebus (University of Utrecht)
Two-Fluid Theory for Spin Superfluidity in Magnetic Insulators

16:00-16:20 Matthieu C. Dartiailh (Lab. Pierre Aigrain, ENS, Paris)
Coherent coupling of a single spin to microwave cavity photons

16:20-16:40 Raphael Kozlovsky (University of Regensburg)
Magnetotransport in 3D Topological Insulator Nanowires

16:40-17:00 Alexander I. Tovstolytkin (Institute of Magnetism, Kyiv)
Dynamic magnetic properties of ferromagnetic multilayers with variable interlayer coupling

17:00-17:20 Alex I.Kopeliovich (Inst. Low Temp. Physics & Engineering, Kharkiv)
Spin-current resonances in a magnetically inhomogeneous 2D conducting system

17:20-17:40 Alessandro Braggio (CNR-SPIN, Genova)
Josephson Current-phase discontinuities detection of Topological transitions

17:40-19:00 Poster Session #2 (drinks served on premises)
Wednesday, October 12

Session Chairperson: Branislav Nikolic

9:00-9:40       Carlo Beenakker (Leiden University)
    Chiral magnetic effect in a topological Weyl semimetal

9:40-10:20      Valeriy Gusynin (Bogoliubov Institute for Theoretical Physics, Kyiv)
    Magnetic catalysis and graphene

10:20-10:40     Coffee break

10:40-11:10     Yurii Skrypnyk (Institute for Metal Physics, Kyiv)
    Band structure transformation as driving force behind Anderson localization of charge carriers in impure graphene

11:10-11:30     Kristen Kaasbjerg (Technical University of Denmark)
    Energy-transfer Coulomb drag in capacitively-coupled quantum-dot structures

11:30-11:50     Oleksandr V. Pylypovskyi (T. Shevchenko National University, Kyiv)
    Effects of geometry on the domain wall dynamics in magnetic helices

11:50-12:10     Henning Hammar (Uppsala University)
    Time-dependent effects in atomistic spin dynamics

12:10-12:30     Maciej M. Maska (University of Silesia, Katowice)
    Electronic transport through a semiconductor quantum dot-ring nanostructure

12:30-14:30     Lunch

14:30-19:00     Excursion (buses depart from the conference building)

19:00           Conference Dinner (Café “Mriya”, Lomonosova Str.69)

Thursday, October 13

Session Chairperson: Carlo Beenakker

9:00-9:40       Roderick Melnik (Wilfrid Laurier University, Waterloo)
    Geometric phases, spin-orbit couplings, and properties of quantum dots and nanoribbons

9:40-10:20      Justin Song (Nanyang Technological University, Singapore)
    Berry curvature and interacting electron liquids: new collective modes

10:20-10:40     Coffee break

10:40-11:20     Yurii Mokrousov (FZ Jülich)
    Ab-initio theory of complex magnets: from Berry phase effects to impurity scattering

11:20-12:00     Dima Pesin (University of Utah)
    Chiral magnetic effect and natural optical activity in metals with or without Weyl points.

12:00-12:30     Sergey Sharapov (Bogoliubov Institute for Theoretical Physics, Kyiv)
    Spin Nernst effect and intrinsic magnetization in low-buckled Dirac materials.

12:30-14:00     Lunch
**Session Chairperson: Justin Song**

14:00-14:40  **Branislav K. Nikolic** (University of Delaware)

*Diagrammatic and resummation algorithms for electron-magnon and electron-phonon interacting systems in nanojunctions far from equilibrium*

14:40-15:20  **Andrey Shytov** (University of Exeter)

*Bound and Quasi-Bound States in Graphene*

15:20-15:40  Coffee break

15:40-16:20  **Boris Ivanov** (Institute of Magnetism, Kyiv)

*Antiferromagnetic droplet soliton: non-linear terahertz spin dynamics, excited by spin transfer torque*

16:20-16:40  **Thomas E. O'Brien** (Leiden University)

*Magnetic Breakdown and Klein Tunneling in a Type-II Weyl Semimetal*

16:40-17:00  **L. Debora Contreras-Pulido** (National Autonomous University of Mexico)

*Coherent and incoherent transport in a linear array of quantum dots*

17:00-17:20  **Kyrylo Snizhko** (Weizmann Institute of Science)

*Klein factors and the unobserved interference in FQHE Mach-Zehnder interferometer*

17:20-17:40  **Mikhail Belogolovskii** (Donetsk National University)

*Memristive effects in solid-state heterostructures*

17:40-19:00  **Poster Session #3**  (drinks served on premises)

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**Friday, October 14**

**Session Chairperson: Oleksiy Kolezhuk**

9:30-10:10  **Carlos Egues** (Instituto de Física de São Carlos)

*Persistent Skyrmion Lattice of Non-Interacting Electrons with Spin Orbit Coupling*

10:10-10:40  Coffee break

10:40-11:20  **Yaroslaw Bazaliy** (University of South Carolina)

*Circular electric currents generated by pure spin current injection*

11:20-12:00  **So Takei** (Queens College, CUNY)

*Macroscopic quantum Josephson devices in magnetic nanostructures*

12:00-12:10  Closing address
   Magnetic susceptibility of topological line-node semimetals

2. **Denis Chevallier** (University of Basel)
   Tomography of Majorana Fermions with STM tips

3. **Oleg V. Ivakhnenko** (Kharkiv National University)
   Simulating quantum dynamical phenomena by two mechanical resonators

4. **Manuel Offidani** (University of York)
   Spin Relaxation in Spin-Orbit Coupled Graphene

5. **Vladimir Shaternik** (Institute for Metal Physics, Kyiv)
   Charge transport in quasi-one-dimensional hybrid tunnel superconductor- quantum dot - superconductor junctions

6. **Raisa Korzh** (Institute of Bioorganic Chemistry and Petrochemistry, Kyiv)
   Synthesis Of Graphitic Carbon Subnitride For Spin Waveguides

7. **Alexandr Tovstolytkin** (Institute of Magnetism, Kyiv)
   Effect of nanostructure layout on spin pumping phenomena in antiferromagnet/ nonmagnetic metal/ ferromagnet multilayered stacks

8. **Michael Ferguson** (ETH Zurich)
   Long-range spin-coherent physics in an electronic cavity strongly-coupled to a quantum dot

9. **Eugenii Melezhik** (Institute of Semiconductor Physics, Kyiv)
   Mobility and noise in n-type semi-metallic Hg$_{1-x}$Cd$_x$Te quantum well for THz detection applications

10. **Vasyl Baliha** (Institute for Condensed Matter Physics, Lviv)
    Localized states and conductance of nanoclusters

11. **Pavlo Bondarenko** (Universidad del Pais Vasco, Bilbao)
    Magnetization Dynamics In Planar Magnetic Dots Driven By The Spin-Orbit Coupled Spin Torque

12. **Artem Borin** (University of Geneva)
    Manifestation of Fermi edge singularity in co-tunnelling regime

13. **Fahriye Nur Gursoy** (University of Regensburg)
    Dynamical spin-orbit-based spin transistor

14. **Iacopo Torre** (Scuola Normale Superiore, Pisa)
    Nonlocal transport and the hydrodynamic shear viscosity in graphene

15. **M. Ali M.Keshtan** (Iran University of Science and Technology)
    Spin filtering in a magnetized zigzag phosphorene nanoribbon

16. **Anastasia Skurativska** (Taras Shevchenko National University of Kyiv)
    Quantum-kinetic properties of electron transport through a quantum dot with two energy levels

17. **Artur Slobodeniuk** (National Laboratory of Strong Magnetic Fields, Grenoble)
    Spin-flip processes and radiative decay of dark intravalley excitons in transition metal dichalcogenide monolayers

18. **Sergey Sharapov** (Bogoliubov Institute for Theoretical Physics, Kyiv)
    Shubnikov-de Haas oscillations of the anomalous Hall conductivity
POSTER SESSION #2 (Tuesday, 17:40-19:00)

19. Constantin Usenko (Taras Shevchenko National University of Kyiv)  
Security of direct quantum channel

20. Alexander I. Voitenko (Institute of Physics, Kyiv)  
Dipole-dipole interaction near the surface of a medium with the spatial dispersion of its dielectric permittivity

21. Vadim Ohanyan (Yerevan State University)  
Exact results on the magnetoelectric effect due to KNB mechanism in quantum spin chains

22. Marcel Serina (University of Basel)  
Long-Distance Coupling Settings for Qubits in Quantum Dots

23. Denys Slobodianiuk (Taras Shevchenko National University of Kyiv)  
Bose-Einstein condensation of magnons in nanosized magnetic elements

24. Pavlo Omelchenko (Simon Fraser University)  
Investigation of spin transport in Ta by magnetic damping of Py|Ta and Py|Ta|(Py|Fe)

25. Viacheslav P. Ostroukh (University of Leiden)  
Two-dimensional Josephson vortex lattice and anomalously slow decay of the Fraunhofer oscillations in a ballistic SNS junction with a warped Fermi surface

26. Petro Yu. Artemchuk (Taras Shevchenko National University of Kyiv)  
Frequency detector based on two uncoupled spin-torque microwave detectors

27. Olga R. Sulymenko (Taras Shevchenko National University of Kyiv)  
Mutual phase-locking of globally-coupled spin-torque nano-oscillators

28. Vladyslav V. Reva (Sumy State University)  
The Efficiency of RF-Field Energy Absorption by Ferromagnetic Nanoparticle in a Liquid

29. Elena Zhitlukhina (Donetsk National University)  
Coherent quantum transport in mesoscopic superconducting heterostructures with degraded interfaces

30. Thomas Kiendl (Freie Universität Berlin)  
Influence of bulk disorder on the energy of Yu-Shiba-Rusinov states

31. Sergei Aksenov (Kirensky Institute of Physics, Krasnoyarsk)  
Spin-dependent transport properties of a semiconducting wire in a nontrivial topological phase

32. Phillipp Reck (University of Regensburg)  
Quantum time mirrors

33. Yaroslav Gerasimenko (University of Leiden)  
Topological pumping blockade as a signature of FQHE parafermions
POSTER SESSION #3 (Thursday, 17:40-19:00)

34. Oleksii M. Volkov (Bogolyubov Institute for Theoretical Physics, Kyiv)
Mesoscale Dzyaloshinskii-Moriya interaction

35. Kostiantyn V. Yershov (Bogolyubov Institute for Theoretical Physics, Kyiv)
Curvature and torsion effects in domain wall dynamics in magnetic nanowires

36. Tomas Orn Rosdahl (Delft University of Technology)
Generating Hamiltonians from symmetry constraints and searching for symmetries of Hamiltonians

37. Gleb Skorobagatko (FU Berlin)
Plasmonic screening of decoherence in quantum limited detectors

38. Kateryna Temchenko (Kyiv Polytechnic Institute)
Dynamics of solitons in low-dimensional nanosystems under the influence of external oscillating magnetic field

39. Silas Hoffmann (University of Basel)
Detecting Topological Superconductivity with φ0 Josephson Junctions

40. Iryna M. Kozak (Institute of Magnetism, Kyiv)
Magnetic multilayers with temperature-regulated interlayer exchange coupling: Curie switch

41. Eugene V. Stolyarov (Institute of Physics, Kyiv)
Transport of microwave Fock-state pulses in a transmission line coupled to a qubit-oscillator system

Magnetopiezoelectric and Magnetodielectric Effects in NdFe3(BO3)4

Fluctuation conductivity and pseudogap in YBa2Cu3O7-δ nanolayers

44. Anton Glushchenko (Institute of Physics and Technology, Kharkiv)
Spontaneous symmetry breaking and classification of quantum states in the spin s=1 systems

45. Sergii Sologub (Institute of Physics, Kyiv)
Scattering of spin-split surface electronic states Bi(111) on magnetic and nonmagnetic adatoms

46. Victoria V. Khist (Institute of Magnetism, Kyiv)
Size effects of ferroelectric and magnetoelectric properties of self-ordered arrays of multiferroic bismuth ferrite nanoparticles

47. Nicklas Walldorf (Technical University of Denmark)
Thermoelectric effects in capacitively coupled quantum dots: The role of multi-electron tunneling