

The International Winter
Phystech Theory School

WPTS -2023

31st January to 6th of February 2023

The School Program

31st of January

Arrival to Yerevan. The groups arriving by pre-arranged flights will be met at the airport and transported to the School venue in Tsakhadzor.

19.00 - Welcome dinner. Meeting at the «Writers» hotel lobby.

1st of February

7.00 – 8.00 – Breakfast. Registration at the hotel lobby.

8.00 – 8.10 – Opening session. Welcome remarks.

8.10 – 11.10 – Morning section. Chaired by A. Melnikov

8.10 – 9.10 “*Many-body Localization in Disordered 1D Hubbard Model with Infinite Onsite Repulsion*”

prof. Boris Altshuler, *Colombia University, USA*

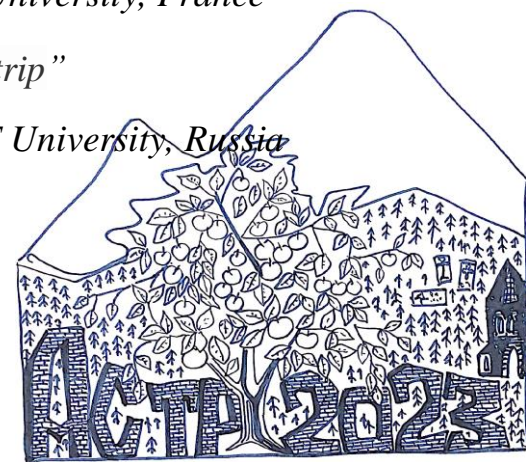
9.10 – 10.10 “*Novel phase transitions in disordered quantum systems*”

prof. Georgy Shlyapnikov, *Orsay University, France*

10.10 – 11.10 “*Edge states in a conducting Moebius strip*”

prof. Alexey Kavokin, *MIPT University, Russia*

9.00 – 11.00 – Coffee and snacks are available



2nd of February

7.00 – 8.00 – Breakfast.

8.00 – 11.00 – Morning section.

Chaired by A.V. Kavokin

8.00 – 9.00 “*Modern aspects of many-body localization: real-space locality and Hilbert-space ergodicity breaking*”

prof. Ivan Khaymovich, *NORDITA Stockholm, Sweden*

9.00 – 10.00 “*Quantum plumbing: the mysteries of nanoscale flows*”

Dr. Nikita Kavokine, *Max Planck Institute for Polymer Research, Germany*

10.00 – 11.00 “*Topology, Disorder, and Correlations in Flat-Band Systems*”

prof. Tigran Sedrakyan, *University of Massachusetts, USA*

9.00 – 11.00 – Coffee and snacks are available

11.30 – 16.30 – Ski-time break. Transfer to the ski lifts and back to the hotel will be organized.

17.00 – 18.00 – Dinner at the Writers hotel

18.00 – 20.30 – Evening section.

Chaired by I. Shelych

18.00 – 18.40 “*Non-Hermitian Weyl fermions of type III and IV: hamiltonian, topological protection and Landau levels*”

prof. Zaur Alisultanov, *MIPT University, Russia*

18.40 – 19.00 “*Quantum feedback at the solid-liquid interface: flow-induced electronic current and negative friction*”

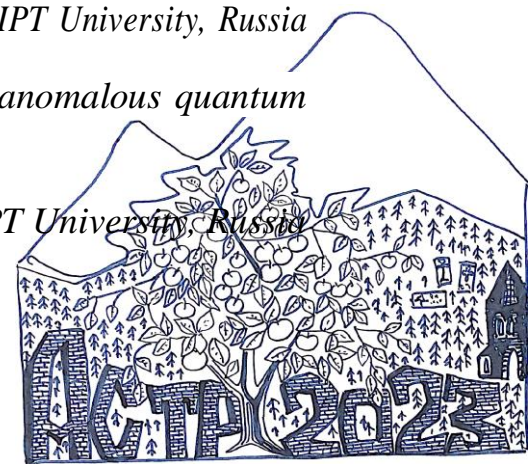
Baptiste Coquiot, *Sorbonne university, France*

19.00 – 19.15 “*BKT superfluid transition in quasi-two-dimensional disordered dipolar Fermi-gases*”

Victoria Pinchenkova, *MIPT University, Russia*

19.15 – 19.30 “*Thermalization with non-zero initial anomalous quantum averages*”

Kirill Kazarnovskii, *MIPT University, Russia*



19.30 – 19.45 “*The resonant state of Yu-SHIBA-Rusinov at normal metal - superconductor contact*”

Anastasia Lyublinskaya, *MIPT University, Russia*

19.45 – 20.00 “*Molecular dynamics of aqueous proton cations on integrals over territories*”

Alexander Kachesov, *MIPT University, Russia*

20.00 – 20.15 “*Disorder-driven transition to tubular phase in anisotropic two-dimensional materials*”

Maksim Parfenov, *MIPT University, Russia*

20.15 – 20.30 “*Non-local plasmonics of two-dimensional systems: from limitations to new functionalities*”

Dmitry Svintsov, *MIPT University, Russia*

19.00 – 20.00 – Coffee and snacks are available

3^d of February

7.00 – 8.00 – Breakfast.

8.00 – 11.00 – Morning section. Chaired by N. Kavokine

8.00 – 9.00 “*Multifractal enhancement of superconductivity in Fermi liquid and non-Fermi liquid systems*”

prof. Igor Burmistrov, *Landau Institute for Theoretical Physics, Russia*

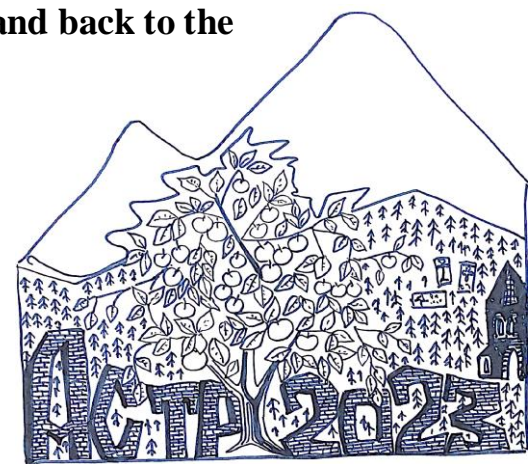
9.00 – 10.00 “*Lamb shift: from hydrogen to 2D semiconductors*”

prof. Mikhail Glazov, *Ioffe Institute, Russia*

10.00 – 11.00 – Coffee and snacks are available

11.30 – 16.30 – Ski break. Transfer to the ski-lifts and back to the hotel.

17.00 – 18.00 – Dinner at the Writers hotel



18.00 – 20.40 – Evening section.

Chaired by I.Khaymovich

18.00 – 18.40 “*Optical Snake States in Photonic Graphene*”

prof. Anton Nalitov, *MIPT University, Russia.*

18.40 – 19.00 “*Loop corrections to a cosmological particle creation*”

Prokopii Anempodistov, *MIPT University, Russia*

19.00 – 19.20 “*Investigation of optically cooled nuclear spin system by warm-up spectroscopy method*”

Dr. Valentina Litvyak, *SPbS University, Russia*

19.20 – 19.40 “*Disorder-induced decoupling of attracting identical fermions*”

Lolita Kniazeva, *MIPT University, Russia*

19.40 – 20.00 “*Surface multifractality in spin quantum Hall system*”

Serafim Babkin, *MIPT University, Russia*

20.00 – 20.20 “*Gapful electrons in a vortex core in granular superconductors*”

Dmytro Kiselov, *MIPT University, Russia*

20.00 – 20.40 “*Multifractally-enhanced superconductivity in two-dimensional systems with spin-orbit coupling*”

Elizaveta Andriyakhina, *MIPT University, Russia*

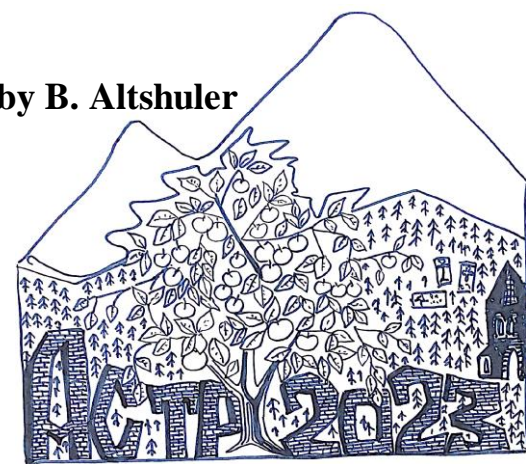
19.00 – 20.00 – Coffee and snacks are available

4th of February

7.00 – 8.00 – Breakfast.

8.00 – 11.00 – Morning section.

Chaired by B. Altshuler



8.00 – 9.00 “*Proximity effect and induced superconducting states in low-dimensional semiconducting structures*”

prof. Alexander Melnikov, *MIPT University, Russia*

9.00 – 10.00 “*Theory of the dynamical stabilization of electronic systems in nanostructures*”

prof. Oleg Kibis, *Novosibirsk State Technical University, Russia*

10.00 – 11.00 “*Novel materials for strong light-matter coupling*”

prof. Ivan Shelykh, *MIPT University, Russia*

9.00 – 11.00 – Coffee and snacks are available

11.30 – 16.30 – Ski-time break. Transfer to the ski-lifts and back to the hotel

17.00 – 18.00 – Dinner at the Writers hotel

18.00 – 20.20 – Evening session. Chaired by I. Iorsh

18.00 – 18.40 “*Microscopic theory of all-optical magnetization control in CrI₃*”

Dr. Andrey Kudlis, *MIPT University, Russia*

18.40 – 19.00 “*Collective excitations of a bound-in-the-continuum state*”

Anna Grudinina, *MEPhI University, Russia*

19.00 – 19.20 “*Optically stimulated electron paramagnetic resonance*”

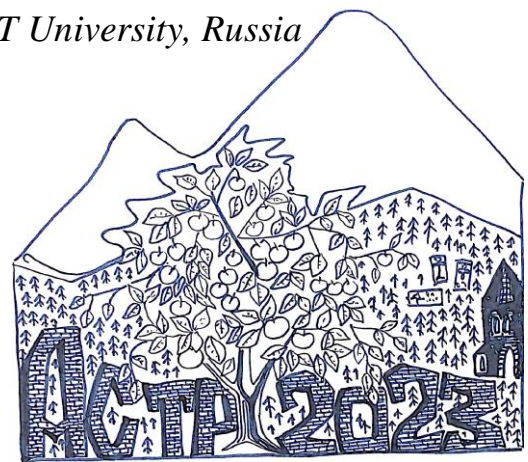
Vadim Kozlov, *SPbS University, Russia*

19.20 – 19.40 “*Endohedral fullerenes as a material for quantum computing*”

Alexander Melentev, *MIPT University, Russia*

19.40 – 20.00 “*Ultracold rotating molecules inside the Rydberg atom*”

Grigor Adamyan, *MIPT University, Russia*



20:00 – 20:20 “*Ratchet effect in photonic graphene*”

Olha Bahrova, *Center for Theoretical Physics of Complex Systems,
Institute for Basic Science, Republic of Korea*

19.00 – 20.00 – Coffee and snacks are available

20.00 – 21.00 – Social gathering in the bar area

5th of February

7.00 – 8.00 – Breakfast.

8.00 – 11.00 – Morning session.

Chaired by A. Nalitov

8.00 – 9.00 “*Atomistic and continuum models for nanostructures*”

prof. Daniele Baretin, *Cusano University, Italy*

9.00 – 10.00 “*Stochastic wave function method: how losses make quantum classical*”

prof. Alexey Rubtsov, *Moscow State University, Russia*

10.00 – 11.00 “*Designing multiphoton entangled states in time-modulated qubit arrays*”

prof. Ivan Iorch, *MIPT University, Russia*

9.00 – 11.00 – Coffee and snacks are available

11.30 – 16.30 – Ski break. Transfer to the ski lifts and back to the hotel

17.00 – 18.00 – Dinner at the Writers hotel

18.00 – 20.20 – Evening section.

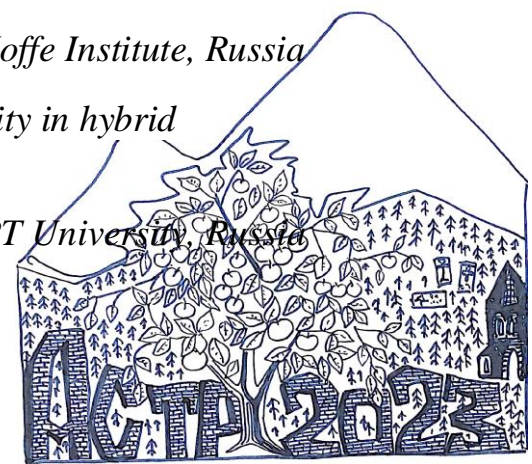
Chaired by D. Baretin

18.00 – 18.40 “*Rydberg excitons in Semiconductors*”

prof. Marina Semina, *Ioffe Institute, Russia*

18.40 – 19.20 “*Polaron-mediated polariton nonlinearity in hybrid perovskites*”

Dr. Vanik Shakhnazaryan, *MIPT University, Russia*



19.20 – 19.35 “*Inertial stochastic magnetodynamics of spin nanostructures*”

Anton Titov, *MIPT University, Russia*

19.35 – 19.50 “*Interaction between spin and Abrikosov vortices in dopt topological insulators*”

Alexey Kapranov, *MIPT University, Russia*

19.50 – 20.05 “*Free energy and entropy in Rindler and de Sitter space-times*”

Dmitry Diakonov, *MIPT University, Russia*

20.05 – 20.20 “*Hard thermal loops in the accelerating frame*”

Kirill Bazarov, *MIPT University, Russia*

19.00 – 20.00 Coffee and snacks are available

6th of February

Free time. Departure of the conference participants to Yerevan

