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XLI INTERNATIONAL WINTER SCHOOL  
IN THEORETICAL PHYSICS

*Kauwaka-XLI*

FEBRUARY 1-6, 2026

# PROGRAM



# FEBRUARY 1 (SUNDAY)

18:00	CHECK IN
19:00 – 20:00	DINNER
20:00 – 22:00	GETTING TOGETHER <span>HALL 2</span>

# FEBRUARY 2 (MONDAY)

08:00 – 08:30	BREAKFAST
08:30 – 08:45	SCHOOL OPENING <span>HALL 1</span>
08:45 – 09:45	Georgy Shlyapnikov Novel phase transitions and quantum advantage in disordered quantum systems
09:45 – 10:15	Vadim Brazhkin Main Triple Point of Substances on the Phase Diagram: The Secret Becomes Clear
10:15 – 13:30	FREE TIME
13:30 – 14:30	LUNCH
14:30 – 15:30	Sergei Ovchinnikov Single particle and two particle excitations in the two-dimensional Hubbard model on square and triangular lattices
15:30 – 15:50	Ivan Goremykin The Effect of Strong Magnetic Fluctuations in the Single-Band Hubbard Model Near Half Filling
15:50 – 16:10	Ilia Dedov Non-Fermi-liquid behavior and Fermi-surface expansion induced by van Hove–driven ferromagnetic fluctuations: the D-TRILEX analysis
16:10 – 16:30	Kaushal Kesharpv Quantum Selection of ground states in low dimensional magnets
16:30 – 17:00	COFFEE BREAK

<b>17:00 – 18:00</b>	<b>Vladimir Mineev</b> <small>ONLINE</small> Altermagnetic and Noncentrosymmetric ordering in metals. <b>Part 1</b>
<b>18:00 – 18:20</b>	<b>Andrey Elistratov</b> Entangling Two Polariton Bose–Einstein Condensates: Challenges and Insights
<b>18:20 – 18:40</b>	<b>Mikhail Vasin</b> Critical Dynamics of Spin Boson Model
<b>18:40 – 19:00</b>	<b>Sergey Remizov</b> Quantum properties of nonequilibrium kinetics of TWPA
<b>19:00 – 20:00</b>	<b>DINNER</b>
<b>19:30 – 21:00</b>	<b>POSTER SESSION 1</b> <small>HALL 2</small>
<b>01</b>	<b>Razmik Babayan</b> Exactly solvable model of electron-phonon interaction with forward-focused scattering
<b>02</b>	<b>Rail Khashayev</b> Tensor networks in condensed matter physics: from DMRG to Feynman Diagrams
<b>03</b>	<b>Ivan Trifonov</b> Coulomb Correlations and the Coherent–Incoherent Electronic Crossover in Vanadium Oxychalcogenides
<b>04</b>	<b>Vitalii Chukov</b> Sub-Bragg and small angle scattering of the Rayleigh wave as a topological intersection of meta-Rayleigh spectroscopy and the Laue-Bragg-Wulff meta-spectroscopy
<b>05</b>	<b>Vsevolod Yashin</b> On classical rewriting of CSS-preserving stabilizer circuits
<b>06</b>	<b>Ludmila Gonchar</b> Competition of superexchange interactions in charge-ordered insulating manganites
<b>07</b>	<b>Alena Semiannikova</b> Electronic and magnetic properties of $\text{Co}_{2-x}\text{Mn}_{1+x}\text{Al}$ ( $x = 0; 0.25; 0.5; 0.75; 1$ ) Heusler alloys: from topological semimetal $\text{Co}_2\text{MnAl}$ to spin gapless semiconductor $\text{Mn}_2\text{CoAl}$

08	<b>Fedor Temnikov</b> Rattling effect in quadruple perovskites and its possible pseudo Jahn-Teller origin
09	<b>Danil Myakotnikov</b> Flat bands in “pyrocubic” lattice
10	<b>Evgenii Chernov</b> Topological transition in $\text{Co}_2\text{MnAl}$ during substitution of cobalt for copper
11	<b>Alexey Mashirov</b> Heat capacity and magnetic phase transitions of $\text{Mn}_5\text{Si}_3$ compound
12	<b>Danila Babukhin</b> Quantum error mitigation with combined data
13	<b>Vladimir Orlov</b> From Discrete to Continuous Variables Systems via Jordan–Schwinger Tomographic Transformation
14	<b>Niazbeck Useinov</b> Spin-orbit effects induced by current in magnetic tunnel junctions
15	<b>Vladislav Okatyev</b> A spin model test for a generative quantum eigensolver
16	<b>Bogdan Fominykh</b> Observation of the Kondo effect in magnetically-doped tungsten ditelluride single crystal
17	<b>Ioann Matveev</b> Semiconductor-metal transition of gold nanotubes
18	<b>Mikhail Petrik</b> Impact of Vibrational Entropy on Ordering and Phase Stability in $\alpha\text{-Ti-Al}$
19	<b>Alina Mardanova</b> Studying quantum phase transitions with quantum kernel methods
20	<b>Yury Panov</b> Exact solution of one-dimensional spin models with Markov property

21	<b>Anastasia Lebedeva</b> Crystal structure, electronic and magnetic properties of $\text{Sr}_2\text{NbO}_4$
22	<b>Polina Makarova</b> Electronic structure, magnetic state and orbital-selective physics in the nickelate superconductor $\text{La}_3\text{Ni}_2\text{O}_7$ at ambient pressure
23	<b>Daria Ponkratova</b> Ferroelectric and antiferroelectric instabilities in Bi monolayer
24	<b>Ekaterina Khazieva</b> Beyond PBE: High-fidelity machine learning potentials for Ti–Al alloys via foundation Model-based transfer learning
25	<b>Polina Kovaleva</b> Extended Hubbard model on the kagome lattice
26	<b>Timofey Maksimov</b> Spectral Features of Exciton Polaritons in Crossed Magnetic and Electric Fields
27	<b>Daniil Yumakov</b> Electronic structure and optical absorption spectra of $\text{Au}_{72}$ gold fullerene
28	<b>Ivan Dudinets</b> All-to-all connectivity of Rydberg-atom-based quantum processors with messenger qubits

21:00 – 22:30

QUIZ [HALL 1](#)

## FEBRUARY 3 (TUESDAY)

08:00 – 08:45	BREAKFAST
08:45 – 10:15	Alexey Rubtsov Local and nonlocal in planar Hubbard systems
10:15 – 13:30	FREE TIME
13:30 – 14:30	LUNCH
14:30 – 15:30	Ivan Leonov Nickelates: a new class of high-temperature superconductors
15:30 – 15:50	Sergey Skornyakov Evaluation the tendencies to superconducting pairing of epsilon-iron and iron-based superconductors from DFT+DMFT calculations
15:50 – 16:10	Viktor Koledov Magnetic flux vortices in moving high-temperature superconductors for magnetic levitation
16:10 – 16:30	Alexey Putilov Vortex structure and intervortex interaction in superconducting structures with intrinsic diode effect
16:30 – 17:00	COFFEE BREAK
17:00 – 18:00	Alexander Melnikov Interplay of superconductivity and ferroelectricity: tuning superconductivity by the electric field
18:00 – 18:20	Yury Proshin Solitary superconductivity in ferromagnet-superconductor trilayers (new aspects)
18:20 – 18:40	Anastasia Maksimovskaya Programmable soliton dynamics in All-Josephson-junction logic cells and networks
18:40 – 19:00	Daniil Konyshov Neural network approximation of classical correlations in quantum systems

19:00 – 20:00	DINNER
20:00 – 20:30	Dajun Feng Heilongjiang Academy of Sciences
20:30 – 22:00	GITAR EVENING <small>HALL 1</small>

## FEBRUARY 4 (WEDNESDAY)

08:00 – 08:45	BREAKFAST
08:45 – 10:15	Vikram Triparthi Quantum spin liquids and topological order
10:15 – 10:40	COFFEE BREAK
10:40 – 11:00	Andrey Mikheenkoy Low dimensional magnetism. Spherically symmetric approaches
11:00 – 11:20	Viktor Yushankhai Non-equilibrium dynamics in low-dimensional models of quantum magnetism
11:20 – 11:40	Leonid Taran Spin Jahn-Teller effect in $\text{CoTi}_2\text{O}_5$
11:40 – 12:00	COFFEE BREAK
12:00 – 12:45	Vladimir Mineev <small>ONLINE</small> Altermagnetic and Noncentrosymmetric ordering in metals. <b>Part 2</b>
13:30 – 14:30	LUNCH
14:30 – 15:30	Vladimir Zyuzin Magnon spin currents in antiferromagnets
15:30 – 15:50	Yulia Baramygina Magnon thermal Hall effect in skyrmion crystal
15:50 – 19:30	FREE TIME
19:30 – 22:30	BANQUET <small>HALL 1</small>

## FEBRUARY 5 (THURSDAY)

08:00 – 08:45	<b>BREAKFAST</b>
08:45 – 09:45	<b>Alexander Chernov</b> Twist-controlled properties of 2D materials
9:45 – 10:15	<b>Alexander Ovchinnikov</b> Chiral phonons and micropolar theory of elasticity
10:15 – 13:30	<b>FREE TIME</b>
13:30 – 14:30	<b>LUNCH</b>
14:30 – 15:30	<b>Vladimir Mantsevich</b> Different regimes of exciton transport in two-dimensional semiconductors
15:30 – 15:50	<b>Mikhail Malakhov</b> Nonlinear exciton dynamics in 2D semiconductors modeled for pump-probe experiments
15:50 – 16:10	<b>Andrey Nikishin</b> Violation of the Luttinger's theorem in fractional Chern insulators
16:10 – 16:30	<b>Semyon Baidak</b> The influence of electronic correlations on the Fermi surfaces and electronic structure of topological semimetal $\text{WTe}_2$
16:30 – 17:00	<b>COFFEE BREAK</b>
17:00 – 17:30	<b>Vladimir Stegailov</b> First-principles modelling of exciton dynamics
17:30 – 17:50	<b>Nikita Fominykh</b> Polaron transport and trimeron ordering in the high-temperature phase of magnetite
17:50 – 18:10	<b>Ludmila Syurakshina</b> Cluster quantum-chemical approach to the study local electronic properties and exchange spin interactions in complex transition metal oxides
18:10 – 18:40	<b>Ramil Niyazov</b> A non-magnetic mechanism of backscattering in helical edge states



<b>18:40 – 19:00</b>	<b>Viktor Timofeev</b> Magnon edge states of skyrmion crystal in non-uniform magnetic field
<b>19:00 – 20:00</b>	<b>DINNER</b>
<b>19:30 – 21:00</b>	<b>POSTER SESSION 2</b> <small>HALL 2</small>
<b>29</b>	<b>Sergey Tarasov</b> Boson sampling with self-generation of squeezing via interaction of photons and atoms
<b>30</b>	<b>Gleb Ershov</b> Scrambling horizon for a local quench: the emergent boundary beyond which information becomes delocalized
<b>31</b>	<b>Alexander Poteryaev</b> Strongly correlated electronic state in the ferrimagnetic quadruple perovskite $\text{CuCu}_3\text{Fe}_2\text{Re}_2\text{O}_{12}$
<b>32</b>	<b>Daniil Konyshev</b> Neural network approximation of classical correlations in quantum systems
<b>33</b>	<b>Ivan Dudinets</b> Circuit-QED simulator of the Bose-Hubbard model for quantum spin dynamics
<b>34</b>	<b>Andrey Plyashechnik</b> Non-equilibrium quantum dynamics in inhomogeneous Josephson traveling-wave parametric amplifiers
<b>35</b>	<b>Dmitry Korlyakov</b> Channel spectrum benchmarking of the Toffoli gate
<b>36</b>	<b>Darya Yasinskaya</b> Predicting Hamiltonian Parameters from Phase Diagrams Using Machine Learning
<b>37</b>	<b>Artem Flegontov</b> Symmetry-induced enhancement of transmission through a disordered system
<b>38</b>	<b>Oleg Zuev</b> Superconducting photocurrents induced by structured electromagnetic radiation
<b>39</b>	<b>Alexander Kopasov</b> Formation of inhomogeneous magnetic states triggered by electromagnetic proximity effect in planar superconductor/ ferromagnet hybrids

40	<b>Anton Syurakshin</b> Exploring magnetic properties of single molecular magnets: general ab initio quantum-chemical approach and its applications
41	<b>Nikita Fominykh</b> Polaron transport and trimeron ordering in the high-temperature phase of magnetite
42	<b>Maria Kovalenko</b> Inverse Faraday effect in mesoscopic superconducting disks and films with columnar defects
43	<b>Alina Tsvetkova</b> Edge states of periodically deformed topological insulator and their forbidden zones oscillating under magnetic field
44	<b>Vasily Ulitko</b> Neural network for predicting parameters of a model cuprate superconductor
45	<b>Sergey Prosnjak</b> Theoretical interpretation of experiments on magnetic moments determination
46	<b>Anna Elistratova</b> Modeling the dynamics of circuit elements for neural network computing based on overdamped Josephson junctions
47	<b>Grigory Dedov</b> Collective modes in correlated $\pi$ -conjugated systems
48	<b>Leonid Silakov</b> Analysis of Fluctuation Statistics via the Fluctuating Local Field Method
49	<b>Anastasia Mikheeva</b> Analysis of the excitation spectrum in magnetic skyrmion structures
50	<b>Ruslan Kiznibaev</b> Role of charge imbalance potential relaxation in high-frequency dynamics of Abrikosov vortices in superconductors
51	<b>Alexander Dudarev</b> Polaronic effects in the exchange interaction of correlated systems: the role of competition between Holstein and Peierls contributions
52	<b>Kaushal Kesharpu</b> Density wave phase diagram of Creutz Lattice: Effect of Correlation and Spin-Orbit Coupling

53	<b>Semyon Onuchin</b> Theoretical approach for treating quantum fluctuations of the order parameter in correlated fermionic systems
54	<b>Murod Bahovadinov</b> Anderson transition of a quantum particle with long-range hopping amplitudes in one dimension
55	<b>Emil Mingazhetdinov</b> Controlling properties of non-Gaussian light states via measurements on a squeezed ancillary mode
56	<b>Alexander Melkozerov</b> Creation of large-scale photonic weighted graph states with linear-optical fusion operations
57	<b>Yana Lyakhova</b> Fluctuation-driven spin and charge order in geometrically frustrated electron systems
21:00 – 22:30 <b>MUSBINGO</b>	

## FEBRUARY 6 (FRIDAY)

08:00 – 08:45	<b>BREAKFAST</b>
08:45 – 09:45	<b>Vladimir Pudalov</b> <small>HALL 2</small> Ferromagnetism in antiferromagnetic quasi-2D crystals
09:45 – 10:15	<b>Igor Nekrasov</b> Peculiarities of the electronic structure of multilayer high-Tc pnictides
10:15 – 10:30	<b>SCHOOL CLOSING</b>
13:00 – 15:00	<b>LUNCH</b>
14:00 – 15:00	<b>CHECK OUT</b>



## SKI RESORT "SUNNY VALLEY"

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