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SMHS Program

SMHS- Website



Dubna-2023

July 11, Tuesday

9:30 – 10:45 Registration at “JINR visiting center”

 Молодежная ул., 5, Дубна, Московская обл., 141980

11:15 – 11:30 Opening ceremony

Plenary talks

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|---------------|------------|---|
| 11:30 – 12:15 | A. Golubov | Manifestations of unconventional pairing symmetry in superconducting hybrids. |
| 12:15 – 13:00 | V. Krasnov | Experimental evidence for both triplet and singlet long-range supercurrents through a strong ferromagnet. |

13:00 – 14:30 Lunch

Plenary talk

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| 14:30– 15:15 | Yu. Shukrinov | Dynamics and resonance phenomena in anomalous Josephson junctions. |
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Session 1

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| 15:15 – 15:45 | A. Schegolev | Neurobiological aspects in superconducting RSFQ-logic circuits. |
| 15:45 – 16:05 | V. Zyuzin | Anisotropic resistivity and superconducting instability in ferroelectric metals. |

16:05 – 16:30 Coffee

Session 2

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|---------------|----------------|--|
| 16:30 – 16:50 | I. R. Rahmonov | Switching between stable states of magnetization in SFS Josephson junctions on 3D topological insulator. |
| 16:50 – 17:10 | M. Nashaat | Peculiarities of the magnetic moment dynamics in hybrid superconducting Josephson junctions. |
| 17:10 – 17:30 | K. V. Kulikov | Resonance properties of nanomagnet coupled to Josephson junction. |
| 17:30 – 17:50 | E. Kovalenko | Effect of electromagnetic radiation magnetic component on φ_0 Josephson junction. |

July 12, Wednesday

Session 1

9:30 – 9:50	T. Golikova	Transport properties of mesoscopic planar S-N/F-S Josephson junctions with strong ferromagnet.
9:50 - 10:10	E. Shpagina	Nonequilibrium superconductivity in InAs/Al nanowires.
10:10 - 10:30	A. Kopasov	Disorder-induced trapping and antitrapping of vortices in type-II superconductors.

10:30 – 11:00 Coffee

Plenary talks

11:00 – 11:45	V. V. Ryazanov	Nonequilibrium phenomena in hybrid superconductor-ferromagnet structures.
11:45 – 12:30	A. S. Mel'nikov	Nonlocal interlayer pairing and induced superconductivity in layered hybrid structures.

12:30 – 14:00 Lunch

Session 2

14:00 – 14:30	K. Arutyunov	Transport of non-equilibrium quasiparticles injected into a mesoscopic-size superconductor.
14:30 – 15:00	A. A. Neilo	Superconducting hybrid structures with spin-orbit interaction.
15:00 – 15:30	I. Soloviev	All-JJ logic circuits based on Josephson 0- and π -junctions.
15:30 – 16:00	V. Khrapai	Quantum Hall Bogoliubov Interferometer

16:00 – 16:30 Coffee

Session 3

16:30 – 17:00	D. Vodolazov	Finite momentum superconductivity in superconducting hybrids: orbital mechanism
17:00 – 17:30	A. Kamashev	Different models of superconducting spin valve.
17:30 – 18:00	V. Bolginov	Layered superconducting memory element based on diluted PdFe alloy.
18:00 – 18:20	T. Karabassov	Collective excitations in superconducting systems at the magnetic surface of 3D TI

July 13, Thursday

Session 1

- 9:30 – 10:00 N. Pugach Ferromagnetic resonance in superconductor-ferromagnet hybrid structure.
10:00 – 10:30 D. V. Anghel Single-photon detectors based on Josephson junctions.

10:30 – 11:00 Coffee

Plenary talks

- 11:00 – 11:45 I. Burmistrov Multifractally-enhanced superconductivity in two-dimensional systems.
11:45 – 12:30 V. Stolyarov Josephson vortex as a logical state of low dissipative devices.

12:30 – 14:00 Lunch

Session 2

- 14:00 – 14:30 Ya. Fominov Peculiarities of the density of states in SN junctions.
14:30 – 15:00 A. Bobkov Composite magnetic excitations in superconductor/magnet heterostructures.
15:00 – 15:30 V. Yukalov Resonance spin reversal in magnetic nanostructures.

15:30 – 16:00 Coffee

16:00 – 17:00

Poster session

18:00 – 21:00

Excursion + Banquet

“13th of July”

SMHS Workshop “BLTP - JINR - Dubna”

July 14, Friday

Session 1

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| 9:30 – 10:00 | S. Apostoloff | Attraction and repulsion between a Néel-type magnetic skyrmion and a Pearl superconducting vortex. |
| 10:00 - 10:30 | V. Timofeev | Dynamical susceptibility of skyrmion crystal. |

10:30 – 11:00 Coffee

Plenary talks

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|---------------|---------------|---|
| 11:00 – 11:45 | S. Bakurskiy | Multilayer hybrid structures with thin superconductive layers: from spin valve to phase logic elements. |
| 11:45 – 12:30 | I. V. Bobkova | Proximity effects in superconductor/antiferromagnet heterostructures. |

12:30 – 14:00 Lunch

Session 2

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|---------------|--------------|--|
| 14:00 – 14:30 | A. Petrzhik | Superconducting current in mesa structures with an interlayer of strontium iridate - strong spin-orbit interaction material |
| 14:30 – 15:00 | D. J. Edmond | Landau-Zener-Stückelberg interferometry in hybrid quantum two-level systems in Josephson junction: modeling dynamics quantum alimentation. |
| 15:00 – 15:30 | V. Shaginyan | Peculiar physics of heavy-fermion metals: theory versus experiment. |
| 15:30 – 16:00 | M. Mashkooi | The fate of non-magnetic defects in a topological superconductors with and without TRI |

16:00 – 16:30 Coffee

Session 3

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|---------------|-------------------|---|
| 16:30 – 16:50 | V. Yu. Yushankhai | Towards the understanding of superconductors with quantum computations. |
| 16:50 – 17:10 | M. R. Pourkarimi | Thermal quantum correlation in two superconducting qubits. |
| 17:10 – 17:30 | R. Niyazov | Topologically protected qubit in helical crystal. |
| 17:30 – 17:50 | G. Bobkov | Critical temperature of superconductor/antiferromagnet heterostructures. |
| 17:50 – 18:10 | S. Abdelmoneim | Ability to control magnetization precession in a shunted φ_0 junction. |
| 18:10 – 18:30 | M. Sameh | Magnetization reversal in a system of nanomagnet coupled to Josephson junction by cosine chirp pulse. |

July 15, Saturday

Session 1

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| 9:30 – 10:00 | V. Zhaketov | Study of superconductivity and magnetism in low-dimensional heterostructures by polarized neutron reflectometry. |
| 10:00 - 10:30 | A. Samokhvalov | Спонтанные токи и генерация вихрей в гибридных структурах сверхпроводник/ферромагнетик с неоднородным обменным полем и эффектом Рашбы. |

10:30 – 11:00 Coffee

Plenary talk

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| 11:00 – 11:45 | A. Buzdin | Electromagnetic long ranged proximity effect in superconductor ferromagnet structures. |
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Session 2

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| 11:45 – 12:15 | Y. Makhlin | Topological Josephson junction in transverse magnetic field. |
| 12:15 – 12:35 | V. Kondratyev | Tunnel magnetoresistance and exchange interaction in superferromagnets. |

12:35 – 14:00 Lunch

Session 3

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|---------------|---------------|---|
| 14:00 – 14:20 | K. Kesharpu | Topological Hall effect in van der Waals Magnets. |
| 14:20 – 14:40 | A. Posadskii, | Universality of the spectrum of multiterminal SNS-junction. |
| 14:40 – 15:00 | A. Putilov | <i>Обратный эффект Фарадея в сверхпроводниках с конечной щелью в спектре возбуждений.</i> |
| 15:00 – 15:20 | A. Fotue | Magnetic and optical absorption properties of RbCl quantum dot nanostructure |
| 15:20 – 15:40 | N. Savitskaya | Modelling of flux pinning mechanisms for tin-based inverted opals |

15:40 – 16:00 Coffee

Workshop closing

"15th of July"

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SMHS Workshop "BLTP - JINR - Dubna"

July 13, Thursday

Poster Session (16:00 – 17:00)

No:	Author(s)	Title
P1	M. V. Bashashin	Simulation of magnetization reversal by pulse of magnetic field in RF-SQUID with ϕ_0 junction
P2	S. D. Brandonne	Spin-Orbit interaction and laser field radiation frequency effects on optical absorption coefficient and thermodynamics properties of doped graphene.
P3	D. G. Bezymiannykh	Quantum size effect in thin superconducting aluminum films.
P4	T. Carlos	Superparamagnetic nature of zero-dimensional superconductors within magnetic field.
P5	D. Ezenkova	Impedance-matched Josephson parametric amplifier: bandwidth optimization by SN AIL parameters variation.
P6	D. Kalashnikov	Dynamics of Josephson vortices in high-frequency devices.
P7	Yu. V. Kislinskii	Strontium iridate as a barrier material for high - T_c - low T_c Josephson junctions.
P8	A. Levin	Effect of superconductivity on non-uniform magnetization in dirty SF junctions.
P9	A. Matanin	Highly efficient multimode superconducting quantum memory.
P10	A. Mazanik	Critical temperature shift of S/F hybrids due to supercurrent-induced triplet correlations.
P11	D. Moskalev	Improving the reproducibility of Al/AIOx/Al Josephson junctions for superconducting circuits.
P12	D. A. Norov	Influence of superconductivity on the magnetic state of thin layers of rare-earth metals.
P13	A. Polkin	Multiple Andreev reflections in diffusive SINIS and SIFIS junctions.
P14	D. L. Saychele	Theoretical study of two coupled order parameters: Application to two-dimensional hybrid structures.
P15	N. Smirnov	Fast two-qubit gates using transmon qubits with a tunable coupler.
P16	I. A. Sokolov	The Cloud Service for Scientific Computing on the MICC.
P17	E. Stadnik & K. Polevoy	Properties of planar Josephson Junction based on normal metal and magnetic insulator.
P18	A. Yanovskaia	Magnon influence on the superconducting DOS in S/F bilayers.
P19	M. I. Zuev	Information and computing system for spintronics tasks at JINR.

