

21. СИМПОЗИЈУМ ФИЗИКЕ КОНДЕНЗОВАНЕ МАТЕРИЈЕ

THE 21st SYMPOSIUM ON CONDENSED MATTER PHYSICS



26 - 30 June 2023, Belgrade, Serbia

<https://www.sfkm2023.ipb.ac.rs/>



Institute of Physics
Belgrade



Vinca Institute of
Nuclear Sciences



University of Belgrade,
Faculty of Physics



Serbian Academy of
Sciences and Arts



Ministry of Science, Technological
Development and Innovation

The 21th Symposium on Condensed Matter Physics - SFKM 2023, Belgrade - Serbia

Location: Main Lecture Hall -SASA Building
Kneza Mihaila 35/II Belgrade, Serbia

Date: 26th-30th June 2023

Day 1 – 26th June 2023

9:00 — 9:15 Conference opening

Chair **Zorica Konstantinović**

9:15 — 09:45 Spin phenomena in van der
Waals heterostructures J. Fabian

09:45 — 10:15 Spin injection and spin-charge
conversion processes in all-oxide
heterostructures B. Martinez

10:15 — 10:45 What is quantum spin torque:
Spintronics meets nonequilibrium
strongly correlated and long-range
entangled quantum matter B. Nikolić

10:45 – 11:00 Proximity Induced Spin-Orbit
Coupling In Phosphorene/WSe₂
and WSe₂/Phosphorene/WSe₂
van der Waals heterostructures M. Milivojević

11:00 — 11:50 Coffee break

Chair

Zoran Popović

- 11:50 – 12:20** Spontaneous superconducting vortex induced by stray field of skyrmion in Chiral Magnet-Superconductor Heterostructures X. Qiu
- 12:20 — 12:35** The Anisotropic Interlayer Exchange In Van Der Waals 2D Magnets S. Stavrić
- 12:35 – 12:50** Charge To Spin Conversion In Graphene On 1T-TaS2 Monolayer Triggered By Charge Density Wave Proximity Effects M. Gmitra
- 12:50 – 13:05** Ion-atom interaction potential dependence on the ion's charge exchange N. Starčević

13:05 — 14:30

Lunch break

Chair

Jelena Pešić

- 14:30 — 15:00** The Ultrafast Thermodynamics Of Graphene And Twisted Bilayer Graphene K.-J. Tielrooij
- 15:00 — 15:30** Exploring Functional Properties Of Two Dimensional Materials By Atomic Force Microscopy B. Vasić
- 15:30 — 15:45** Unmovable Nodal Points and Lines in Two- Dimensional Materials: Dispersions and Positions in the Reciprocal Space V. Damjanović

15:45 — 16:00	Solving the puzzle of magnetic 2D materials – from electronic structure to magnetic interactions	D. Šabani
16:00 — 16:30	Graphene For Physiological Parameter Sensing	M. Spasenović
16:30 – 16:50	Coffee break	
16:50 – 18:50	Round table discussion <i>Discussion will be held in the Serbian language</i>	

Day 2 – 27th June 2023

Chair

Darko Tanasković

9:00 — 9:30	Many-body localization: wanted dead or alive - from random to quasiperiodic systems	P. Prelovšek
9:30 — 10:00	Nonequilibrium transport and thermalization in strongly disordered 2D electron systems	D. Popović
10:00— 10:30	Dipole representation of half-filled Landau level	M. Milovanović
10:30— 10:45	Cumulant Expansion in the Holstein model: Spectral Functions and Mobility	P. Mitrić

10:45 – 11:00 Observation of many-body
scarring in a Bose-Hubbard
quantum simulator A. Hudomal

11:00 — 11:20 Coffee break

Chair *Vladimir Dobrosavljević*

11:20 — 11:50 Time reversal symmetry
breaking and Bogoliubov-Fermi
surfaces in multiband
superconductors I. Herbut

11:50 — 12:20 Disorder in $\text{FeSe}_{1-x}\text{S}_x$ ($0 \leq x \leq$
1) superconducting crystals C. Petrovic

12:20 — 12:50 Probing charge density wave
phases and the Mott transition in
1T-TaS₂ by Raman scattering N. Lazarević

12:50 — 13:05 Uniaxial strain-induced changes
in vibrational modes of FeSe J. Pešić

13:05— 14:30 Lunch break

Chair *Cedomir Petrovic*

14:30 — 15:00 Surprises in transition metal
dichalcogenides revealed by
interlayer charge transport L. Forro

15:00 — 15:30 Superconductivity and Charge-
Density-Wave in Kagome Metal
 CsV_3Sb_5 Revealed by NMR
measurement J. Luo

15:30 — 15:45	Evolution of Lattice, Spin, and Charge Properties Across FeSe _{1-x} S _x Phase Diagram	A. Milosavljević
15:45 — 16:00	Exploring superconductivity in doped mono- and bilayer borophenes	B. Šoškić
16:00 – 16:30	Raman Studies of Kagome Lattice Systems	R. Hackl
16:30 — 16:50	Coffee break	
16:50 – 17:15	<i>Chair Bojana Višić</i>	<i>Poster presentations</i>
17:15 — 19:00	POSTER SESSION	

Day 3 – 28th June 2023

Chair Zoran Ivić

9:00 – 9:15	In memoriam: Leonardo Golubović	
9:15 — 9:45	On The Effects Of Finite Rate Driving On Disordered Magnetic Systems	Đ. Spasojević
9:45 — 10:00	Spin Activity Correlations in Driven Disordered Systems	D. Jovković
10:00 – 10:15	Higher-order Connectivity Patterns in the Correlation Structure of Complex Systems	S. Maletić

10:15— 10:45	Calcium-A life and death signal	M. Satarić
10:45 — 11:15	Transport in the emergent Bose liquid: Bad metal, strange metal, and weak insulator, all in one system	W. Ku
10:15— 11:35	Coffee break	
<i>Chair</i>	<i>Željko Šljivančanin</i>	
11:35 — 12:05	From magnonics to neuromorphic computing in magnetic 2D materials	M. Milošević
12:05 — 12:35	The Evolution of Topological Magnetism in the Two-Dimensional Limit	G. Eres
12:35 — 13:05	Phyllosilicates as a platform for air-stable 2D magnetism	C. Teichert
13:05 — 13:35	Rare earth spin frustrated systems	Q. Zhang
13:35 — 22:00	Lunch break + Conference Excursion + Conference Diner	

Day 4 – 29th June 2023

Chair *Stevan Nad-Perge*

9:00 — 9:30	Prediction of 1st order Phase Transition with Electron-Phonon Coupling	M. Graml
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9:30 — 10:00	Tuning Phases and Physical Properties of RENiO ₃	M. Radović
10:00— 10:30	Binary Oxides and Ferroelectricity: Ab-initio Insights Into The Polar-state Formation And Its Switching	M. Ležaić
10:30— 10:45	Analysis Of Two-Dimensional Crystals Via Rainbow Scattering	M. Hadžijojić
10:45 - 11:00	MoxWx-1S2 Nanotubes For Advanced Field Emission Application	B. Višić
11:00 — 11:20	Coffee break	
<i>Chair</i>	<i>Igor Herbut</i>	
11:20 — 11:50	Mott quantum critical phase of FeO dominates Earth's lower mantle	V. Dobrosavljević
11:50 — 12:20	Spectral Functions and Mobility of the Holstein Polaron	D. Tanasković
12:20 — 12:50	Nanostructure View Of Electronic Transitions In Selected Van Der Waals Quantum Materials	E. Božin
12:50— 14:30	Lunch break	

Chair

Marjana Ležaić

14:30 — 15:00	Collective dynamics of social systems: a statistical physics approach	M. Mitrović Dankulov
15:00 — 15:30	Effect of Large Quantum Correlations in “Russian Doll” Quantum Dots: Impact on MEG Solar Cells	S. Tomić
15:30 — 15:45	A Nonequilibrium-Thermodynamics Perspective on Charge Separation in Organic Solar Cells	V. Janković
15:45— 16:00	Soft Cluster Crystals in Simulation and Experiment	N.Adžić
16:00— 16:30	How Can We Benefit From The Optical Properties Of Mn ⁵⁺ To Make Pigments And Near-Infrared Phosphors?	M. Dramićanin
16:30 — 16:50	Coffee break	

Chair

Stanko Tomić

16:50 — 17:20	Fabrication of hybrid Janus particles and their application as light-driven micromotors	V. Djoković
17:20 – 17:50	Designing of a “perfect” porphyrin molecule for the Mechanically Controllable Break Junction Experiments	D. Dulić

17:50 — 18:05	Single-Molecule Probing By Rectification in a Nanogap	R. Žikić
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Day 5 – 30th June 2023

Chair **Dragana Popović**

9:30 — 10:00	Efficient Photon and Phonon Interfaces for Spin Qubits in Diamond	M. Lončar
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10:00— 10:30	Stability of vortices in dipolar droplets	A. Balaž
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10:30— 11:00	On the Theoretical Description of Photon Bose-Einstein Condensates	A. Pelster
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11:00 — 11:20	Coffee break	
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Special session: Celebrating Milan Damnjanović's 70th Birthday Jubilee

Chair **Časlav Brukner**

11:20 - 11:30	TBA	I. Božović
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11:30 — 12:00	Topological States in Layered Transition Metal Dichalcogenides	I. Milošević
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12:00 — 12:30	Superconductivity, Topology and Correlations In Twisted And Untwisted Graphene Structures	S. Nadj-Perge
12:30 — 13:00	Excitons and phonons in van-der-Waals 2D materials	J. Maultzsch
13:00 — 13:30	Finding Useful Metastable Materials – New Perspectives on an Old Problem	V. Stevanović
13:30- 14:30	Lunch break and social event in SASA club	
<i>Chair</i>	<i>Janina Maultzsch</i>	
14:30 - 15:00	Crystal Closed Shell	M. Damnjanović
15:00 – 15:30	Quantum Reference Frames: what they are and what they're good for	Č. Brukner
15:30 - 16:00	Reconstruction of Quantum Particle Statistics: Fermions, Bosons and Beyond	B. Dakić
16:00 – 16:30	Physics and Geometry Beyond the Limits of Uncertainty Relations	M. Djurdjevic
16:30 – 16:35	Conference closing	