

## **ADVANCES IN SOLID STATE PHYSICS AND NEW MATERIALS**

30 years of the Center for Solid State Physics and New Materials at the Institute of Physics Belgrade

# **CONFERENCE PROGRAM**

LOCATION:

**Serbian Academy of Sciences and Arts,** Kneza Mihaila 35, 11 000 Belgrade, Serbia



MAY 19-23, 2025

SERBIAN ACADEMY OF SCIENCES AND ARTS AND INSTITUTE OF PHYSICS BELGRADE

Time	Session A – Main Hall M	ay 19	Session B – Hall 1	Time
08:30-09:30	Regi	stration	08:30-09:30	
09:30-10:30	Openin	g ceremony		09:30-10:30
10:30-10:50	Coffee Break			10:30-10:50
Chair	Nenad Lazarević	Bojan St	ojadinović	Chair
10:50-11:20	Thomas Devereaux (USA) "Thermal Hall in Quantum Antiferromagnets"		umar Kalarikkal (India) O Hybrid Platforms for Emerging ons"	10:50-11:20
11:20-11:50	<b>Kurt Hingerl</b> (Austria) "Optical Transitions Between Entangled Electron-Phonon States"	"Explorin Atorvasta Variable-	<b>Lazarević</b> (Serbia) g Structural Phase Transitions in Itin Calcium Trihydrate through Temperature Raman Spectroscopy"	11:20-11:40
11:50-12:20	<b>Cedomir Petrovic</b> (China and Serbia) "Fermi Surface characteristics in FeP <sub>2</sub> "	"Strain-d SrIrO₃ thi <b>Andrija</b> n "Strain Ei	na Šolajić (Serbia) ngineering in hBN/M <sup>III</sup> X <sup>VI</sup> ructures for Enhanced Optoelectronic	11:40-12:00 12:00-12:20
12:20-14:15	Lunch Break			12:20-14:15
Chair	Thomas Devereaux	Zorica P	opović	Chair
14:15-14:45	Milorad Milošević (Belgium) "Brain inspired computing with superconducting neurons"	"Physical	(rstovska (N. Macedonia) characterization and device application c bilayer films"	14:15-14:45
14:45-15:15	<b>Leonardo Degiorgi</b> (ETH Zurich) "Optical Signature of Anomalous Hall Effect in a Correlated Magnetic Weyl Semimetal"	"Phase Se	r <b>Požek</b> (Croatia) paration in Lightly Doped La <sub>2-x</sub> Sr <sub>x</sub> CuO <sub>4</sub> y Cu NMR"	14:45-15:15
15:15-15:45	<b>Vladimir Damljanović</b> (Serbia) "Group-Theoretical Study of Simple Bands in Two-Dimensional Materials"	"Borophe Phonons,	Šoškić (Montenegro & Belgium) ne, Hydrogenation, Intercalation, Migdal-Eliashberg theory, ductivity "	15:15-15:45
15:45-16:05	Coffe	ee Break		15:45-16:05

Time	Session A - Main Hall M	lay 19	Session B - Hall 1	Time
Chair	Milorad Milošević	Zorica I	Konstantinović	Chair
16:05-16:35	Jochen Geck (Germany) "Elastic lattice tuning and magnetic interactions of Kitaev materials" (online)	"Innovat Magneti Spinel Fo	Lazarević (Serbia)  tive Approach to Studying the Structural,  c and Electrical Characteristics of Nano  errites Prepared via Soft  ochemical Synthesis"	16:05-16:35
16:35-17:05	<b>Zurab Guguchia</b> (Switzerland) "Unconventional Superconductivity and Charge Order in Kagome Lattices Revealed by Muon Spin Rotation" (online)		Gajić (Serbia) ility of Covellite"	16:35-17:05

Time	Session A - Main Hall	May 20	Session B - Hall 1	Time
Chair	Ana Milosavljević (WS1)	Matthia	as Opel	Chair
09:00-09:30	Andrew Goodwin, (UK) "Truchet-tile architectures in materials design"  Hermann Suderow (Spain)	, "Explor Next-Ge	Kralj (Croatia) ing New Horizons: Epitaxial Growth of meration 2D Materials" irker (Czech Republic)	09:00-09:30
09:30-10:00	"Surface Charge Density Wave in UTe <sub>2</sub> "	Exfoliat	le of Metallic Substrates in Large-Area ion of TMDCs"	09:30-10:00
10:00-10:30	Yann Gallais (France) "Ultrafast Raman scattering in quantum materials"	"Artifici demana	o <b>Bianconi</b> (Italy) Ital High Tc SCs with Tc amplification on It made of nano HSs by quantum design It a Fano-Feshbach shape resonance"	10:00-10:30
10:30-10:50	Coffee Break			
	Yann Gallais (WS1)	Ivana N	<b>Ailošević</b>	
10:50-11:20	Caitlin O'Neil (Germany) "The stress-strain relationship of quantum materials: New method developments and	"Unrave Deficien from DI	šti (Serbia)  Pling the Electrochromic Mechanism of Nint NiO: A Charge Localization Perspective TT+U Calculations"  ije Stepanenko (Serbia)	10:50-11:20
	application to Sr <sub>2</sub> RuO <sub>4</sub> "	"Photon Respons	Condensation and Electromagnetic se in Single Molecule Antiferromagnets ux Coupling"	11:20-11:40
11:20-11:50	Goran Karapetrov (USA) "Coexistence of Superconductivity and Chiral Charge Density Wave in TiSe <sub>2</sub> "	"Unlock	<b>Djokic</b> (Serbia) ing the Universality of Fano's Effect in Spectroscopy and Its Role in Condensed Physics"	11:40-12:00
11:50-12:20	<b>Zhenzhong Shi</b> (Taiwan) "Elasticity of Charge Density Wave Superlattice in Low-dimensional Materials"	, "Applica Electroi	a Ilic (Serbia) ations of Small Air Ions and magnetic Fields in Research with cal Materials"	12:00-12:20
12:20-14:15	Lu	ınch Break		12:20-14:15

ia) Thin Films with Self Active Elements in  uid-Phase Exfoliated at Graphene Films  Chair  14:15–14:45  14:45–15:05
Thin Films with Self Active Elements in 14:15–14:45 uid-Phase Exfoliated 14:45–15:05
•
ctural Changes Of 15:05–15:25 trochemical Cycling"
) oxygen vacancies on <b>15:25–15:45</b> o <sub>3</sub> thin films"
15:45-16:05
Chair
Polymer Substrates 16:05–16:35 Parameters"
land) rt equation beyond 16:35–17:05
17:05-18:05

Time	Session A – Main Hall M	ay 21 Session B - Hall 1	Time
Chair	Bojana Višić	Vladimir Dobrosavljević	Chair
09:00-09:30	<b>Reshef Tenne</b> (Israel) "Inorganic nanotubes: From WS <sub>2</sub> to 'misfit' compounds"	Gheorghe-Lucian Pascut (Romania) "Crystal Structure Predictions in Correlated Materials at Finite Temperatures"	09:00-09:30
09:30-10:00	Christoph Gadermair (Italy) "Modulation of Ultrafast Quasiparticle Dynamics in Two-dimensional Semiconductors"	<b>Louissa Reissig</b> (Germany)  "The use of differential photocurrent in the characterization of novel optically active materials"	09:30-10:00
		Ivna Kavre Piltaver (Croatia)	
10:00-10:30	<b>Zdenek Sofer</b> (Czech Republic) "Novel 2D magnets and dielectrics"	"Ultra-thin ZnO coatings on microstructured $\gamma$ -Fe <sub>2</sub> O <sub>3</sub> thin films prepared by atomic layer deposition for enhanced photocatalysis"	10:00-10:30
Chair	Zdenek Sofer	Jelena Mitrić	Chair
10:50-11:20	<b>Andres Cantarero</b> (Spain) "Thickness dependence of the CrI <sub>3</sub> dielectric function"	John Evans (UK) "Condensed Matter Physics for Hydrogen Production – the Reversible Memory Reactor" Sanja Djurdjić Mijin (Spain and Serbia)	10:50-11:20 11:20-11:40
		"Affordable and Precise Method for Creating Single-Photon Emitters in GaSe"	11:20-11:40
11:20-11:50	<b>Lena Yadgarov</b> (Israel) "Optimized Growth and Manipulation of Light- Matter Interaction in Stabilized Halide Perovskite Nanowire Array"	Sonja Predin (Serbia) "Pairing Instabilities and Critical States in Graphene Quantum Hall Systems" (Contributed talk)	11:40-12:00
11:50-12:20	Marija Drndić (USA) "Controlling Magnetic Textures in Iron Germanium Telluride (Fe <sub>3</sub> GeTe <sub>2</sub> ) Characterized by Low Temperature Lorentz TEM"	Mario Novak (Croatia) "Unconventional temperature evolution of quantum oscillations in Sn-doped BiSbTe <sub>2</sub> S topological insulator" (Contributed talk)	12:00-12:20
12:20-14:15	Lun	ch Break	12:20-14:15

Time	Session A – Main Hall M	lay 21	Session B - Hall 1	Time
Chair	Andres Cantarero	Marija I	rndić	Chair
14:15-14:45	Simon Billinge (USA) "Tracking local order and dynamics in functional materials"	! "Strongly	<b>Mertelj</b> (Slovenia) Anisotropic Spinterface Magnetism in Molecular Heterostructures"	14:15-14:45
14:45-15:15	<b>Jelena Pešić</b> (Serbia) "Modeling and Mapping Current Flow in MoS <sub>2</sub> Nanonetworks"	"Electron	tovac (Croatia) -plasmon Scattering in Doped e" (Contributed talk)	14:45-15:05
15:15-15:45	Lev Vidmar (Slovenia) "Quantum Phase Transitions Above Ground	"Coheren Emergin	tojanović (Germany) t Phonon Raman Spectroscopy as an g Technique for Space Exploration" uted talk)	15:05-15:25
	States: Ergodicity Breaking Transitions"	"Tunable	adovic (Serbia) Electronic States: Semiconductor-to- state Transition in CeO2 Nanocrystals"	15:25-15:45
15:45-16:05	Coff	ee Break		15:45-16:05
Chairs	Rudi Hackl, Nenad Laz	arević, Slob	odan Bubnjević	Chairs
16:05-17:05		loquium schfeld (US splenty of c		16:05-17:05

19:00	Conference dinner	19:00

Time	Session A - Main Hall	May	22 Session B - Hall 1	Time
Chair	Rudi Hackl		Myrsini Kaitatzi (WS1)	Chair
09:00-09:30	<b>Neven Barisic</b> (Austria and Croatia) "High-Tc Cuprates – Story of Two Electronic Subsystems"		<b>Ana Milosavljević</b> (Serbia)  "Anisotropic Strain Response in FeSe"	09:00-09:30
09:30-10:00	Alexandros Lappas (Greece) "Fluctuating Magnetic Moments Near Superconductivity in Interlayer-Expanded FeSe"	y.	<b>Igor Vaskivskyi</b> (Slovenia) "Electron and Lattice Dynamics During Transition to a Metastable Hidden State"	09:30-10:00
10:00-10:30	<b>László Forró</b> (USA) "Aging of High-Tc Superconductors with Defects	5"	Corinna Burri (Switzerland)  "Imaging of electrically controlled van der Waals layer stacking in 1T-TaS <sub>2</sub> "	10:00-10:30
Chair	Neven Barišić		Igor Vaskivskyi (WS1)	Chair
10:50-11:20	Peter Hirschfeld (USA)  "Homes scaling across the cuprate phase diagram"		<b>Ge He</b> (China) "Evidence of spin density wave gap in La <sub>3</sub> Ni <sub>2</sub> O <sub>7</sub> "	10:50-11:20
11:20-11:50	Darko Tanasković (Serbia) "Precursors to Anderson Localization in the Holstein Model: Quantum and Quantum-Classica Solutions"	al	<b>Tobias Ritschel</b> (Germany) "Charge density waves and superconductivity in Vanadium based Kagome metals"	11:20-11:50
11:50-12:20	Jonas Bekaert (Belgium)  "Transition metal dichalcogenides as unique platform for emerging quantum phases: A first-principles perspective"		Myrsini Kaitatzi (Greece) "Electronically-Driven Local Lattice Distortions in Molecule-Intercalated Iron-Chalcogenide Superconductors"	11:50-12:20
12:20-14:15	Lui	nch l	Break	12:20-14:15

Time	Session A – Main Hall	May 22	Session B - Hall 1	Time
Chair	Simon Billinge	<b>Tobias</b>	Ritschel	Chair
14:15-14:45	Ivana Radosavljevic Evans (UK) "Structure-Property Relationships in Oxide Ion Conductors for Energy Applications"	"Resilien Against <b>Zorica I</b> "Anisotr	msar (Germany) ce of Mott Insulating State of La <sub>2</sub> CuO <sub>4</sub> Photodoping" Copović (Serbia) opic Superconductor In Josephson	14:15-14:45 14:45-15:05
14:45-15:15	Natalia Drichko (USA)  "Magnetism and bands topology in Nd <sub>2</sub> Ir <sub>2</sub> O <sub>7</sub> probed by Raman scattering spectroscopy"	Exchang <b>Valenti</b> i	With Rashba Spin Orbit Coupling And e Field" n Ivanovski (Serbia) lated ZrTe3 by Fe: A Mossbauer Effect	15:05-15:25
15:15-15:45	<b>Aleksandar Matkovic</b> (Austria) "Junctions and Contacts in 2D Semiconductor Devices"	"Invisibl	<b>litric</b> (Serbia) Population with Luminescent Polish for butterfeiting"	15:25-15:45
15:45-16:05	Co	offee Break	, ,	15:45-16:05
Chair	Jonas Bekaert	Valenti	ı Ivanovski	Chair
16:05-16:35	<b>Laura Fanfarillo</b> (Italy) "Superconductivity in the Presence of Repulsive Interactions"	e "A Simpl Transpo	itric (Serbia) e and Practical Approach for Calculating rt Properties with Dynamical Quantum y: Application to the Holstein Model"	16:05-16:35
16:35-17:05	<b>Birender Singh</b> (USA) "Uncovering the Hidden Ferroaxial Orbital Density Wave as the Origin of the Axial Higgs Mode in RTe <sub>3</sub> " (online)	"Harnes:	koko (Croatia) sing Heat: The Dynamic World of calient Materials"	16:35-17:05
17:05-18:05		ers + Cocktail SASA Club		17:05-18:05

Time	Session A - Main Hall	May 23	Session B - Hall 1	Time
Chair	Igor Herbut	Emil Bo	žin (WS5)	Chair
09:00-09:30	<b>Wei Ku</b> (China)  "Universal low-temperature fluctuation of unconventional superconductors revealed"	"Neutro Science ( Excellen	McGuinness (Ireland) ns and Photons Elevating Worldwide (NEPHEWS) – Trans-National Access For t Curiosity Driven Research"	09:00-09:30
09:30-10:00	<b>Dragana Popovic</b> (USA) "Failed Superconductivity in Chemically Substituted Mott Spin Liquid Materials"	"Writing Large Fo	adosavljevic Evans (UK) Successful Proposals for Beamtime at acilities: Before, During and Experiment"	09:30-10:00
10:00-10:30	Jakša Vučičević (Serbia) "Towards numerically exact computation of conductivity in the thermodynamic limit of interacting lattice models"	"Materio	y <b>Vogel Jørgensen</b> (Sweden) al Science using MAX IV – the First 4th ion Synchrotron Source"	10:00-10:30
Chair	Darko Tanasković	Ivana R	adosavljevic Evans (WS5)	Chair
10:50-11:20	<b>Vladimir Dobrosavljevic</b> (USA) "Role of Disorder in Wigner-Mott Transitions"	"Insight	ans (UK) on Functional Materials from Parametric ng Studies at Large Scale User Facilities"	10:50-11:20
11:20-11:50	Khandker Quader (USA) "Doped Infinite-layer Nickelate Superconductor and Tri-layer Nickelates: Self-consistent DFT+DMFT Approach"	matthia M	s <b>J. Gutmann</b> (UK) unities at the ISIS spallation neutron	11:20-11:50
11:50-12:20	<b>Igor Herbut</b> (Canada) "SO(8) unified theory of two-dimensional interacting Dirac fermions"	"Spectro	adovic (Switzerland) scopy at the Synchrotron, Microscopy of ntum World"	11:50-12:20
12:20-14:15	Lu	ınch Break		12:20-14:15

Time	Session A – Main Hall	May 23	Session B - Hall 1	Time
Chair	Alberto Pomar	John I	Evans (WS5)	Chair
14:15-14:45	<b>Bozidar Nikolić</b> (Serbia) "Kagome Thin Layers: Diperiodical Point of View"		n <b>el Gensch</b> (Germany) ntum) Materials in high Terahertz Fields"	14:15-14:45
14:45-15:15	<b>Zorica Konstantinovic</b> (Serbia) "Nanostructured thin films with strong spin-or interaction"	bit "Futur	ew Jackson (Sweden) re Research Opportunities at European tion Source"	14:45-15:15
15:15-15:45	Snezana Lazić (Spain) "Can sound be used for time-bin encoding of photonic qubits for secure quantum communication?"	"Muon	Guguchia (Switzerland) Spin Rotation: Principles of the Technique Oplications in Quantum Materials Research" e)	15:15-15:45
15:45-16:05	Co	offee Break		15:45-16:05
Chair	Bozidar Nikolić	Dušar	n Božanić (WS5)	Chair
16:05-16:35	Alberto Pomar (Spain) "Spin Conduction in FM/AFM/NM Multilayers"	, "Photo	vo A. Garcia (France) pelectron Circular Dichroism: From Model pular Systems to Nanoparticles"	16:05-16:35
16:35-17:05	<b>Haluk Koralay</b> (Türkiye) "Advances in IMD Processed MgB₂ Wires for Potential Applications"	"High-	ndo Igoa Saldaña (Germany) energy diffraction and scattering for s and chemistry at PETRA III"	16:35-17:05
17:05-17:35	Closing ceremony	"Obsei Nanos Based	ac McGuinness (Ireland) rving On-Surface Synthesis of Novel tructures By High Resolution Synchrotron X-ray Spectroscopies: Chiral Graphene ibbons and Porphyrin Networks"	17:05-17:35

09:00-09:20 Bojana S "Art Rest Aleksa J "Applica	Workshop opening  a Panajotović Savić (Serbia) Foration and Science: A Brief History of Entanglement"  elikić (Serbia)  tion of Scientific Methodes in Research on Mural Paintings"  filjević (Serbia)  duction and Self-Cleaning Protection of Cultural Heritage Objects by Development of New	08:55-09:00 Chair 09:00-09:20 09:20-09:40
09:00-09:20	Savić (Serbia) Foration and Science: A Brief History of Entanglement"  elikić (Serbia)  tion of Scientific Methodes in Research on Mural Paintings"  iljević (Serbia)	09:00-09:20
09:20-09:20 "Art Rest Aleksa J "Applica:	coration and Science: A Brief History of Entanglement"  elikić (Serbia)  tion of Scientific Methodes in Research on Mural Paintings"  iljević (Serbia)	
09:20-09:40 "Applica	tion of Scientific Methodes in Research on Mural Paintings"  iljević (Serbia)	09:20-09:40
<b>09:40–10:05</b> "Salt Red	al Materials"	09:40-10:05
	<b>Inković</b> (Serbia) "Microbial Assisted Biocontrol and Biocleaning in Stone Heritage ation - The Case of Rožanec Mithraeum Monument (Slovenia)"	10:05-10:30
10:30-10:50	Coffee Break	10:30-10:50
Chair Jelena P	ešić	
10:50-11:20 <i>"Science"</i>	Galiotis (Greece) meets Art: graphene enabling solutions for the conservation of cultural heritage" Comašević-Ilić (Serbia)	10:50-11:20
<b>11:20–11:45</b> <i>"Tiled Ne Perspect"</i>	etwork Films from Liquid Phase Exfoliated h-BN and Phyllosilicates: Properties and ives for Heritage Protection"	11:20-11:45
<b>11:45–12:10</b> <i>"Applica"</i>	n Teichert (Austria) tion of Atomic Force Microscopy Based Techniques for Damage Assessment, Conservation, and ion of Historical Papers and Fresco Wall Paintings"	11:45-12:10
12:10-14:20	Lunch Break	12:10-14:20
	Location: Faculty of Applied Arts, University of Arts Belgrade, Kralja Petra 4	
Chair Irena Ži	vković	Chair
<b>14:20–14:50</b> <i>"Portable Shortcon"</i>		14:20-14:50
14:50-16:30 Tatjana	vković, Ivana Milošević, Jasna Vujin, Bojan Miljević, Milica Pankov, Vesna Miljić, Tripković (Serbia) raining - On-site Demonstration of Artefact Characterization Using Portable Instruments"	14:50-16:30
16:30-16:40	Workshop closing	16:30-16:40

Time	Workshop 3: Bioaerosols and nanoaerosols: interdisciplinary approaches in microbiology, May 19, Hall 3	Time
Chair	Predrag Kolarž and Irena Aranđelović	Chair
11:20-11:35	Irena Aranđelović (Serbia) "Introductory talk about the IonCleanTech project and about this workshop" Irena Aranđelović (Serbia)	11:20-11:35
11:35-11:55	"Raising importance of the prevention of transmission of airborne biological matter in indoor air – threats posed by bioaerosols"	11:35-11:55
11:55-12:10	Marko Janković (Serbia) "Respiratory infections of viral etiology in immunosuppressed persons"	11:55-12:10
12:10-12:25	<b>Stefan Mijatović</b> (Serbia) "Allergies of the respiratory tract: fungi as the neglected allergens"	12:10-12:25
12:25-14:15	Lunch Break	12:25-14:15
Chair	Predrag Kolarž and Irena Aranđelović	Chair
14:15-14:30	Irena Aranđelović (Serbia)  "The lung microbiome – pandemic potential in the era of antimicrobial resistance"  Andrea Baddi (Seebig)	14:15-14:30
14:30-14:45	Andrea Radalj (Serbia) "Animal respiratory viruses with the zoonotic potential"	14:30-14:45
14:45-15:05	Mira Aničić Urošević (Serbia) "Biological Samples for Monitoring of Aerosol and Its Associated Pollutants"	14:45-15:05
15:05-15:25	Anđelija Ilić (Serbia) "Characterization of microplastics using spectroscopic and digital image analyses"	15:05-15:25
15:25-15:45	<b>Predrag Kolarž</b> (Serbia) "Experimental methods for investigation of ion–aerosol interaction"	15:25-15:45
15:45-16:00	Coffee Break	15:45-16:00
Chair	Predrag Kolarž and Irena Aranđelović	Chair
16:00-16:20	<b>Jelena Trajković</b> (Serbia) "Carbon–fiber and other ionizer types in combating airborne pathogens – a review"	16:00-16:20
16:20-16:40	Anđelija Ilić (Serbia) "Performance enhancement of HVAC filters by unipolar ionization"	16:20-16:40
16:40-17:00	<b>Predrag Kolarž</b> (Serbia) "Removal and inactivation of bacteria and fungi by ionization / Workshop conclusions"	16:40-17:00

Time	Workshop 4: Computational analysis and modeling of biological materials, May 21, Hall 3	Time
Chair	Anđelija Ilić and Tijana Štajner	Chair
09:00-09:45	Vladimir Dobričić (Serbia) "Synthesis, physico-chemical and biological properties of acridine derivatives"	09:00-09:45
09:45-10:10	<b>Tijana Štajner</b> (Serbia)  "Reinvention of the diagnostic algorithm and treatment options for reactivated toxoplasmosis – ToxoReTREAT project"	09:45-10:10
10:10-10:30	Olivera Lijeskić (Serbia)  "Monitoring of reactivated toxoplasmosis in allogeneic HSCT recipients"	10:10-10:30
10:30-10:50	Coffee Break	10:30-10:50
Chair	Anđelija Ilić and Tijana Štajner	Chair
10:50-11:10	Jelena Srbljanović (Serbia) "Experimental chemotherapy of reactivated toxoplasmosis"	10:50-11:10
11:10-11:30	<b>Đorđe Zlatković</b> (Serbia)  "Cell toxicity and anti-T. gondii efficacy of de novo synthetized acridine derivatives"	11:10-11:30
11:30-11:50	Anđelija Ilić (Serbia) "Cyst recognition in microscopic slides: Estimation of Toxoplasma gondii brain cyst size and location"	11:30-11:50
11:50-12:10	<b>Jelena Trajković</b> (Serbia)  "Computational image analysis of developmental dynamics and morphological characteristics of tachyzoites"	11:50-12:10