

# SCIENTIFIC PROGRAM



# Scientific Program

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**Monday, October 7:  
SUPERCONDUCTIVITY  
Conference hall “Greek”**

*Morning session*

- 09:00 – 09:30 Opening session  
*J. Bonca, Univ. of Ljubljana, J. Stefan Institute, Slovenia*  
*S. Kruchinin, BITP, Kiev, Ukraine*
- 09:30 – 10:00 Electron-electron interactions in various solids determined by ARPES  
*J.H. Fink, IFW, Dresden, Germany*
- 10:00 – 10:30 Order-parameter theory for disorder-driven metal-insulator transitions  
*V. Dobrosavljevic, Florida State Univ., USA*
- 10:30 – 11:00 ARPES studies of electronic nematic phases in cuprate and iron-based superconductors  
*A. Fujimori, Tokyo Univ., Japan*
- 11:00 – 11:30 **Coffee break**
- 11:30 – 12:00 NMR of cuprate superconductors: Recent developments  
*J. Haase, University of Leipzig, Germany*
- 12:00 – 12:30 Dynamical spin and charge structure factors in cuprate superconductors  
*T. Tohyama, Tokyo University of Science, Japan*
- 12:30 – 13:00 Quantum oscillations and charge-density wave correlations in the cuprates  
*D. Orgad, Hebrew Univ., Israel*

*Afternoon session*

- 14:00 – 14:30 Doping and momentum dependence of coupling strength in cuprate superconductors  
*S. Feng, Beijing Normal University, China*
- 14:30 – 15:00 The enhancement of  $T_c$  with spin-orbit coupling through the hole mechanism of superconductivity  
*F. Marsiglio, Univ. Alberta, Canada*
- 15:00 – 15:30 Optical evidence of an enhanced electronic effective mass in the anomalous  $\text{Pb}_{1-x}\text{Tl}_x\text{Te}$  superconductor  
*L. Degiorgi, ETH, Switzerland*
- 15:30 – 16:00 **Coffee break**

# Scientific Program

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16:00 – 16:30	Quantum responses of Majorana fermions in topological crystalline superconductors <i>M. Sato, Kyoto University, Japan</i>
16:30 – 17:00	Photoinduced ultrafast nonequilibrium phenomena in correlated electron systems <i>S. Ishihara, Tohoku University, Sendai, Japan</i>
17:00 – 17:30	Emergent electronic phenomena in mixed valence rare-earth fullerides <i>K. Prassides, OPU and Tohoku Univ., Japan</i>
17:30 – 18:00	Electronic compressibility and high- $T_c$ superconductivity: New links <i>L. de' Medici, ESPCI, Paris, France</i>
18:00 – 18:30	Development of ferromagnetic fluctuations in heavily hole-over doped high- $T_c$ cuprates <i>T. Adachi, Sophia Univ., Japan</i>
18:30 – 19:00	STM imaging of electronic superstructures in high- $T_c$ cuprate $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+\delta}$ <i>M. Oda, Hokaido Univ, Japan</i>

***Tuesday, October 8:***  
**ELECTRON CORRELATION  
IN SUPERCONDUCTORS**  
**Conference hall “Greek”**

***Morning session***

09:00 – 09:30	Quantum thermalization in holography and the laboratory <i>J. Zaanen, Leiden Univ., Netherlahd</i>
09:30 – 10:00	The minimal effective Gibbs ansatz (MEGA): A quantum computing framework for determining many-body correlation functions at nonzero temperature <i>J. Freericks, Georgetown University, USA</i>
10:00 – 10:30	Particle, spin and energy transport in strongly disordered Hubbard model <i>M. Mierzejewski, WUST, Poland</i>
10:30 – 11:00	Time and momentum resolved tunneling spectroscopy applied to non-equilibrium phenomena in correlated systems <i>A. Feiguin, Northeastern Univ., USA</i>
11:00 – 11:30	<b>Coffee break</b>

## Scientific Program

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11:30 – 12:00	Jammed quantum matter and other exotic electronic states of created far out of equilibrium <i>D. Mihailovic, J. Stefan Ins., Slovenia</i>
12:00 – 12:30	Coupled Cu and Mn charge and orbital orders incuprate/manganite multilayers <i>C. Monney, Fribourg Univ., Switzerland</i>
12:30 – 13:00	Spin-liquid state in planar Heisenberg models <i>P. Prelovšek, J. Stefan Ins., Slovenia</i>
	<i>Afternoon session</i>
14:00 – 14:30	Photoinduced superconductivity by $\eta$ pairs in a Mott insulator <i>S. Yunoki, RIKEN, Japan</i>
14:30 – 15:00	Unconventional density waves and novel pairing mechanism in strongly correlated electron systems <i>H. Kontani, Nagoya Univ., Japan</i>
15:00 – 15:30	Microwave-range applications of tunable graphene-related nanostructures <i>S. Bellucci, INFN, Italy</i>
15:30 – 16:00	<b>Coffee break</b>
16:00 – 16:30	Correlation induced capacitance enhancement <i>R. Frésard, CNRS, France</i>
16:30 – 17:00	Strong electron-lattice coupling in overdoped cuprates: An extension of standard BCS theory? <i>S. Conradson, WSU, USA</i>
17:00 – 17:30	Strong correlation effects at the nanoscale in the heavy-fermion metal $\text{YbRh}_2\text{Si}_2$ <i>S. Wirth, MPICPS, Dresden, Germany</i>
17:30 – 18:00	Real-time dynamics in the half-filled Holstein model: Melting of charge-density wave states <i>F. Heidrich-Meisner, Univ. of Göttingen, Germany</i>
18:00 – 18:30	Combining dynamical quantum typicality and numerical linked cluster expansions <i>R. Steinigeweg, Univ. of Osnabrück, Germany</i>
18:30 – 19:00	Evolution of the spin excitations in doped cuprates <i>K. Wohlfeld, Univ. of Warsaw, Poland</i>

# Scientific Program

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**Tuesday, October 8:  
SUPERCONDUCTORS  
Conference hall “Red”**

*Afternoon session*

14:00 – 14:30	Ultrafast transient reflectivity measurements of optimally-doped Bi2212 with disorder <i>Y. Toda, Hokaido Univ, Japan</i>
14:30 – 15:00	Resonant X-ray Inelastic Scattering and nanoscale inhomogeneity in FeSe <sub>1-x</sub> Te <sub>x</sub> <i>J. Mustre de León, Cinvestav-Mérida, Yucatán, México</i>
15:00 – 15:30	NMR study under pressure on the iron-based superconductor FeSe <sub>1-x</sub> S <sub>x</sub> : Observation of two types of low-energy AF fluctuations <i>N. Fujiwara, Kyoto Univ., Japan</i>
15:30 – 16:00	<b>Coffee break</b>
16:00 – 16:30	Hole propagation in the antiferromagnetic $t - J_z$ model <i>A. Oles, Jagiellonian Univ., Poland</i>
16:30 – 17:00	Direct observation of surface-induced orbital order in a strongly-correlated superconductor revealed by gap-dependent scanning tunneling microscopy <i>Y. Yoshida, Kanazawa Univ., Japan</i>
17:00 – 17:30	Photodoped Mott insulators in non-equilibrium steady-state localization <i>J. Li, Univ. of Erlangen-Nuremberg, Germany</i>
17:30 – 18:00	Electronic phase diagram of Fe <sub>1+y</sub> Te <sub>1-x</sub> Se <sub>x</sub> revealed by magnetotransport measurements <i>T. Watanabe, Hirosaki Univ., Japan</i>
18:00 – 18:30	Geometrical frustration effects on charge and spin degrees of freedom in strongly correlated $\pi$ electrons <i>K. Hashimoto, Tokyo Univ., Japan</i>
18:30 – 19:00	Superconductivity in iron-based spin-ladder material BaFe <sub>2</sub> S <sub>3</sub> and related materials <i>H. Takahashi, Nihon Univ., Japan</i>

# Scientific Program

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**Wednesday, October 9:  
SUPERCONDUCTIVITY  
Conference hall “Greek”**

*Morning session*

- 09:00 – 09:30 Orbitals and nematicity in La-1111 single crystals  
*B. Buechner, IFW, Germany*
- 09:30 – 10:00 Magnetic-field-tuned superconducting quantum phase transition in underdoped cuprates  
*A. Popovic, Florida State Univ., USA*
- 10:00 – 10:30 Enhancement of superconducting state properties and crystallinity degradation in superconducting selenides  
*R. Puzniak, Institute of Physics, Warsaw, Poland*
- 10:30 – 11:00 Phase diagram of cuprate high-temperature superconductors based on the optimization Monte Carlo method  
*T. Yanagisawa, NIAIST, Japan*
- 11:00 – 11:30 Phase transition in the cuprates from a magnetic-field-free stiffness meter viewpoint  
*A. Keren, Inst. of Technology, Israel*
- 11:30 – 12:00 **Coffee break**
- 12:00 – 12:30 The maximum critical temperature of superconductivity in BCS-BEC crossover  
*H.-Y. Choi, Sungkyunkwan Univ., Korea*
- 12:30 – 13:00 Unusual superconducting phases in multi orbital systems; examples from FeSe and Sr<sub>2</sub>RuO<sub>4</sub>  
*B. Andersen, Niels Bohr Inst., Denmark*

*Afternoon session*

- 14:00 – 14:30 Heat capacity and thermodynamic functions of loaded and unloaded forms of several zinc imidazole metal organic frameworks  
*B. Woodfield, Brigham Young Univ., USA*
- 14:30 – 15:00 Synthesis and physical properties of FeSe<sub>1-x</sub>A<sub>x</sub> (A = Te, S) epitaxial films  
*A. Maeda, Tokyo University, Japan*
- 15:00 – 15:30 *d*-wave insulator-metal transition and fallacies on pairing symmetry in cuprate superconductors  
*H.T. Kim, ETRI, South Korea*

## Scientific Program

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15:30 – 16:00	Superconducting films and interfaces: Novel features from spin imbalance and Rashba spin-orbit coupling <i>G. Zwicknagl, TU Braunschweig, Germany</i>
16:00 – 16:30	<b>Coffee break</b>
16:30 – 17:00	Orbital selective physics in Superconducting $\text{KFe}_2\text{As}_2$ <i>X.G. Qiu, Institute of Physics, Beijing, China</i>
17:00 – 17:30	Nanoscale devices based on oxide 2DES: Fundamental studies and possible applications <i>D. Stornaiuolo, USNF, Napoli, Italy</i>
17:30 – 18:00	Superconductivity and ferroelectricity in strontium titanate <i>W. Rischau, Univ. of Geneva, Switzerland</i>
18:00 – 18:30	Inherited and flatband-induced ordering in twisted graphene bilayers <i>C. Honerkamp, Aachen University, Germany</i>
18:30 – 19:00	Multi-band nature of a cuprate superconductor revealed by angle-resolved photoemission spectroscopy <i>M. Horio, Univ. of Zürich, Switzerland</i>

**Wednesday, October 9:  
ELECTRON CORRELATION  
IN SUPERCONDUCTORS  
Conference hall “Red”**

*Afternoon session*

14:00 – 14:30	High-temperature superconductors as ionic metals <i>S.D. Sunko, Univ. of Zagreb, Croatia</i>
14:30 – 15:00	Magnetism of the low-dimensional orbital-selective Mott phase <i>J. Herbrych, WUST, Poland</i>
15:00 – 15:30	Quantum computation in quantum dots with Rashba coupling <i>T. Ramsak, Univ. of Lyublyana, J. Stefan Institute, Slovenia</i>
15:30 – 16:00	<b>Coffee break</b>
16:00 – 16:30	Superconductivity enhanced by a ferroelectric quantum critical point <i>I. Inoue, AIST, Tsukuba, Japan</i>
16:30 – 17:00	Development of quantum spin states in organic radical crystals <i>Y. Hosokoshi, Osaka Prefecture University, Japan</i>



# Scientific Program

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17:00 – 17:30	Quantum chaos challenges many-body localization <i>L. Vidmar, Josef Stefan Ins., Slovenia</i>
17:30 – 18:00	Effective masses of carriers in iron pnictides/chalcogenides and other superconductors determined via quantum oscillations <i>T. Terashima, NIMS, Japan</i>
18:00 – 18:30	Field dependent density of states observed above the upper critical magnetic field in strongly disordered MoC thin films <i>P. Szabo, IEP, Slovakia</i>
18:30 – 19:00	Ultrafast optical quenches in unconventional superconductors studied by means of time-resolved multipulse optical spectroscopy <i>T. Mertelj, Jozef Stefan Institute, Slovenia</i>
	<b>Poster session</b>
20:00 – 21:00	Study of superconductivity in $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}/\text{SrTiO}_3$ composites <i>T. Tchabukiani, Tbilisi State University, Georgia</i>
	<b>Thursday, October 10: ELECTRON CORRELATION IN SUPERCONDUCTORS Conference hall “Greek”</b>
	<b>Morning session</b>
09:00 – 09:30	Spin fluctuation induced Weyl semimetal state in the paramagnetic phase of $\text{EuCd}_2\text{As}_2$ <i>M. Shi, Paul Scherrer Institute, Switzerland</i>
09:30 – 10:00	Quantum states and entanglement conversion from single photons to single electron spins in gate-defined quantum dots <i>A. Oiwa, Osaka Univ., Japan</i>
10:00 – 10:30	Superconductivity without doping in the iron-based 1111 family: The $\text{ThFeAsN}$ case <i>T. Shiroka, ETH, Switzerland</i>
10:30 – 11:00	<b>Coffee break</b>
11:00 – 11:30	Intertwined charge-density-wave and superconductivity in disordered $2\text{H-NbSe}_2$ <i>R. Grasset, Ecole Polytechnique, France</i>
11:30 – 12:00	Evidence of Kondo screening cloud of micron lengths <i>I. Borzenets, City Univ., Hong Kong</i>

## Scientific Program

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12:00 – 12:30	AC susceptibility, DC magnetization and magnetic relaxation studies of $\text{YBa}_2\text{Cu}_3\text{O}_7$ films with synergetic pinning centres grown by PLD <i>A. Crisan, NIMP, Romania</i>
12:30 – 13:00	Electronic properties of iron-based superconductors and related materials from photoemission spectroscopy <i>D. Yevtushinsky, EPFL, Switzerland</i>
13:00 – 13:30	State of the art in the development of spark plasma sintered $\text{MgB}_2$ superconductor <i>P. Badica, NIMP, Romania</i>
	Closing Remarks: <i>J. Bonca, S. Kruchinin,</i>