

# Program

## Sunday 20 June

16:45-19:00 Registration

19:00 Welcome reception

## Monday 21 June

### 08:45-09:00 Opening

#### Cuprates and related Materials (I)

Chair: Shiro Sakai

09:00-09:30 Hiroyuki Yamase

*What is a Pomeranchuk instability?*

09:30-10:00 Marcello Civelli

*The cluster dynamical mean-field method to study low-dimensional strongly correlated fermion problems*

10:00-10:30 Santiago Grigera

*Entropy landscape associated with quantum criticality and nematicity in Sr<sub>3</sub>Ru<sub>2</sub>O<sub>7</sub>*

10:30-11:00 Coffee Break

#### Cuprates and related Materials (II)

Chair: Dmytro Inosov

11:00-11:30 Hiroyuki Yamase

*Pomeranchuk instability in cuprate superconductors*

11:30-12:00 Marcello Civelli

*The unconventional superconductivity of a two-dimensional doped Mott insulator: implications to high-temperature cuprate superconductors*

12:00-12:30 Amit Kanigel

*The superconducting gap in Zn substituted Bi<sub>2</sub>212*

12:30-13:00 Andrew Walters

*The effect of covalent bonding on magnetism in the cuprates*

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### 14:30-15:45 Coffee and posters

#### Mott transition

Chair: Artem Sboychakov

15:45-16:15 Leonetta Baldassarre

*Metal to Insulator Transition and Phase separation in Cr-doped V<sub>2</sub>O<sub>3</sub>*

16:15-16:45 Francisco Rivadulla

*Intrinsic lattice instabilities in magnetic oxides close to the metal-insulator transition*

16:45-17:30 Discussion: *How much do we understand about cuprates and other Mott systems?*

Tuesday 22 June

**Experimental and theoretical techniques to study high Tc SC (I)**

**Chair: Claudio Mazzoli**

09:00-09:30 Alan Drew

*Using muons as probes of magnetism*

09:30-10:00 Carsten Honerkamp

*Functional renormalization group for interacting fermions*

10:00-10:30 Mathieu Le Tacon

*Inelastic Photon Scattering: concepts and methods*

10:30-11:00 Coffee Break

**Experimental and theoretical techniques to study high Tc SC (II)**

**Chair: Alexander Kordyuk**

11:00-11:30 Alan Drew

*Magnetism and superconductivity in the iron-pnictide superconductors*

11:30-12:00 Carsten Honerkamp

*Cuprates and iron pnictides viewed from the renormalization group perspective*

12:00-12:30 Mathieu Le Tacon

*Inelastic Photon Scattering investigations of non-conventional superconductors*

12:30-13:00 Dmytro Inosov

*Energy and temperature dependence of spin fluctuations in electron-doped iron arsenide superconductors*

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**14:30-15:45 Coffee and posters**

**Spin and Orbital Physics I**

**Chair: Gladys León**

15:45-16:15 Maria Daghofer

*Numerical simulations for the interplay of spins and orbitals in multi-orbital models for pnictides*

16:15-16:45 Natalia Perkins

*Quantum 120-degrees model on pyrochlore lattice: orbital ordering in MnV<sub>2</sub>O<sub>4</sub>*

16:45-17:30 Discussion: *How do magnetism, superconductivity and orbital physics interplay in pnictides and other systems?*

Wednesday 23 June

**Organics and Heterostructures (I)**

**Chair: Sergio Ciuchi**

09:00-09:30 Simone Fratini

*Introduction to the physics of layered organic conductors*

09:30-10:00 Maria José Calderón

*New phases arising in oxide heterostructures*

10:00-10:30 Paola Gentile

*Competing broken symmetry states in bulk materials and hybrid structures made of ferromagnets and superconductors*

10:30-11:00 Coffee Break

**Organic and Heterostructures (II)**

**Chair: Iván González**

11:00-11:30 Simone Fratini

*Electronic correlations and unconventional metallic states in models for quarter-filled organic conductors*

11:30-12:00 Maria José Calderón

*Electronic reconstruction in manganite heterostructures*

12:00-12:30 Nicolas Bergeal

*Superconductivity at a Mott-Insulator/Band-Insulator interface  $\text{LaTiO}_3/\text{SrTiO}_3$*

12:30-13:00 Yoram Dagan

*Tuning spin-orbit coupling and superconductivity at the  $\text{SrTiO}_3/\text{LaAlO}_3$  interface*

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**Excursion of the conference**

Thursday 22 June

**Other unconventional superconductors (I)**

**Chair: Eva Maria Brüning**

09:00-09:30 Ilya Vekhter

*Electronic properties of unconventional superconductors in the vortex state and the gap symmetry*

09:30-10:00 Hermann Suderow

*Scanning tunneling spectroscopy at very low temperatures*

10:00-10:30 Marie-Aude Measson

*Introduction to the High Pressure Technique at Low Temperature*

10:30-11:00 Coffee Break

**Other unconventional superconductors (II)**

**Chair: Adrian Crisan**

11:00-11:30 Ilya Vekhter

*Magnetic field-induced anisotropy in specific heat and transport properties of heavy fermion and organic superconductors*

11:30-12:00 Hermann Suderow

*Superconducting gap and vortex lattice in strongly correlated systems*

12:00-12:30 Marie-Aude Measson

*Superconductivity in Non-centrosymmetric Heavy Fermions Compounds*

12:30-13:00 Koichi Izawa

*Probing quantum criticality in strongly correlated electron systems by transport coefficients*

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**14:30-15:45 Coffee and posters**

**Spin and orbital physics II**

**Chair: Olivier Cepas**

15:45-16:15 Catherine Fleck

*Interplay between orbital, spin and charge degrees of freedom in the single crystals of the cobaltite  $\text{Sr}_{0.85}\text{Y}_{0.15}\text{CoO}_3$ -d*

16:15-16:45 Andreas Schnyder

*Geometrical and orbital frustration in quantum magnets: Volborthite and  $\text{FeSc}_2\text{S}_4$*

16:45-17:30 Discussion: *NGSCES*

Friday 25 June

**Frustrated systems and exotic ground states (I)**

**Chair: Joachim Deisenhofer**

09:00-09:30 Cornelius Krellner

*Ferromagnetic Kondo lattices*

09:30-10:00 Christian Ruegg

*Neutron scattering under extreme conditions*

10:00-10:30 Claudio Mazzoli

*Recent results on multiferroic and frustrated systems investigated by magnetic (resonant) x-ray scattering.*

10:30-11:00 Coffee Break

**Frustrated systems and exotic ground states (II)**

**Chair: Natalia Perkins**

11:00-11:30 Cornelius Krellner

*Ferromagnetic correlations in CeTPnO (T=Fe, Ru; Pn=P, As)*

11:30-12:00 Christian Ruegg

*Quantum phase transitions in model magnets*

12:00-12:30 Eva Maria Brüning

*Exotic ground state of CeRu<sub>4</sub>Sn<sub>6</sub>*

12:30-13:00 Hiroaki Kusunose

*Discovery of magnetic octupole order*

**13:00-13:15 Closing Session**

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