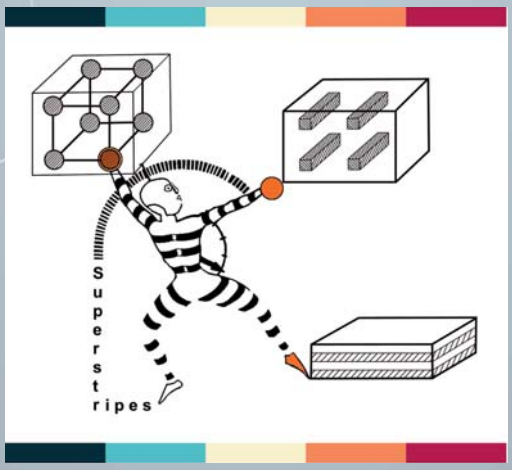
QUANTUM COMPLEX

June 8-12, 2020, Frascati, Rome, Italy

Antonio Bianconi
Andrea Gauzzi
Augusto Marcelli
Yasutomo Uemura



RICMaSS

INFN LNF
Istituto Nazionale di Fisica Nucleare

Columbia University
in the City of New York

European Academy of Sciences

Program

QUANTUM COMPLEX MATTER 2020

RICMASS – INFN-LNF – FMCP

June 8-12, 2020, Frascati, Rome, Italy

Chairpersons

Antonio Bianconi
Andrea Gauzzi
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organized by:

Rome Int. Center Materials Science RICMASS SUPERSTRIPES

Laboratori Nazionali di Frascati LNF, INFN

Frontiers of Condensed Matter Physics, FCMP School, Columbia University

Monday, June 8, 2020

Session 1 - Chairperson: A. Bianconi

11:30 S. Caprara: *Dynamical charge density fluctuations pervading the phase diagram of a Cu-based high-Tc superconductor*

12:10 T. Shibauchi: *Time-reversal symmetry breaking in FeSe-based superconductors*

12:50 Communications S. Kotaro: *Phase transitions between helices, vortices, and hedgehogs in chiral magnets by controlling spatial anisotropy*

13:20 R. Shimano: *Superconducting precursor above Tc studied by collective mode (Higgs or JPR) by pump-probe optical experiment in Bi2212 and YBCO*

Session 2 - Chairperson: E. Carlson

14:00 Communications K. Ishida: *Nematic Quantum Criticality in FeSe1-xTex*

14:30 D. Nicoletti: *Optically-driven superconductivity*

15:10 Y. Uemura: *Dynamic Superconductivity Responses Detected by Photo-excited Optical Conductivity and Vortex Nernst Effect*

15:50 C. Mazzoli: *Coherent diffractive correlation imaging: a view on complex matter across space and time*

Session 3 - *Discussion time*

Tuesday, June 9, 2020

Session 1 - Chairperson: Y. Uemura

11:30 G. Aeppli: *Designer quantum matter for molecular recognition*

12:10 M. Imada: *Ab initio and machine learning studies on cuprates reveal hidden self-energy structure and superconducting mechanism*

12:50 Communications K. Ishihara: *Low-Energy Quasiparticle Excitations in Half-Heusler Superconductors with j = 3/2 Fermions*

13:20 K. Zhou: *Charge density wave excitations and phonon anomalies in* $Bi_2Sr_2LaCuO_{6+\delta}$

Session 2 - Chairperson: S. Caprara

14:00 Communications S. Kokanova: *Stability of antiferromagnetic domain walls in anisotropic Hubbard model*

14:30 S. Mukin: *Caloronic solutions in 2D+1 spin-fermion model and the mechanism of high-Tc superconductivit*

15:10 A. Moreo: *Orbital Selective Mott Phases, Pairing Tendencies and Magnetic Block States in Multiorbital Models for Iron-Based Ladders and Chains*

15:50 G. Campi: *Fluctuations of polaronic lattice Charge Density Waves and space anti-correlation with Spin Density Waves at nanoscale in nickelates*

Session 3 - *Discussion time*

Wednesday, June 10, 2020

Session 1 - Chairperson: A. Perali

11:30 A.M. Oles: *How spin-orbital entanglement depends on the spin-orbit coupling in a Mott insulator*

12:10 A. Sboychakov: *Spin-valley half-metal as a prospective material for spin-valleytronics*

12:50 Communications Y. Tanaka: *Fabrication of atomically thin WTe2 flakes and band structure investigation by angle-resolved photoemission spectroscopy*

13:20 S. Okumura: *Topological Magnetic Textures with Monopoles in Chiral Metals*

Session 2 - Chairperson: C. Mazzoli

14:00 Communications M.V. Mazziotti: *Superconducting Dome in Multigap Superconductivity near a Topological Lifshitz transition*

14:30 A. Perali: *Enhanced Critical Temperature and Screening of Pair Fluctuations in Superconductors with Flat and Deep Bands*

15:10 M. Doria: *Possible shape resonances in superconducting Ni/Bi bilayers*

15:50 Z. Guguchia: *Tunable anomalous Hall conductivity through volume-wise magnetic competition in a topological kagome magnet*

Session 3 - *Discussion time*

Thursday, June 11, 2020

Session 1 - Chairperson: A. Marcelli

11:30 L. Degiorgi: *Band reconstruction in the Dirac material $Ca_{1-x}Na_xMnBi_2$ revealed by optical and magnetic torque experiments*

12:10 T. Yanagisawa: *Kinetic energy driven superconductivity and quantum fluctuations in cuprate high-temperature superconductors*

12:50 Communications S. Mathew: *Coupling of Trions and Soft-Phonons in the Photoluminescence of MoS_2 on $SrTiO_3$ Substrate*

13:20 M. Sakano: *Radial spin texture in elemental tellurium with chiral crystal structure*

Session 2 - Chairperson: A. Moreo

14:00 Communications F. Galdenzi: *Iron rich amphiboles: a study on correlated structural and electrical properties*

14:30 A. Bianconi: *Room temperature multigap superconducting near Lifshitz transitions with coexisting BCS condensates of free particles and BCS-BEC condensate of polarons in scale free networks*

15:10 D. Popovic: *Signatures of a pair density wave at high magnetic fields in stripe-ordered cuprates*

15:50 E. Bozin: *Local orbital degeneracy lifting as a precursor to an orbital-selective Peierls transition*

Session 3 - *Discussion time*

Friday, June 12, 2020

Session 1 - Chairperson: A.M. Oles

11:30 M. Capone: *The Hund's metal, its instabilities, and the phase diagram of iron-based superconductors*

12:10 S. Rezvani: *Endotaxial shape transition of Mn_5Ge_3 islands to long nanowires*

12:50 Communications A. D'Elia: *Tunability of electronic structure and disorder of nanostructured VO_x with variable oxygen content*

13:20 A. Gauzzi: *Tuning topological Dirac states using correlated d-electrons*

Session 2 - Chairperson: A. Gauzzi

14:00 Communications S. Shamoto: *High-temperature partial order in Mn3RhSi*

14:30 E. Carlson: *Fractal electronic structures in VO_2*

15:10 V. Dobrosalievic: *Low-Temperature Dielectric Anomalies at the Mott Insulator-Metal Transition*

15:50 A. Marcelli: *Coherent THz radiation on thin MoO_3 films deposed on Cu substrates: evidence of hyperbolic phonon polaritons and of extreme electromagnetic confinement*

Session 3 - *Discussion time*