

THU1F3: Magnetism - Strongly Correlated Electron Systems

Chaired by V. Sechovsky, Charles University, Prague, Czech Republic

Time: Thursday 9:40–11:00

Location: Aula 3

THU1F3.1 9:40 Aula 3

Room temperature ferromagnetism in the TiO_2 : rutile system: The role of oxygen vacancies and transition metal impurities — •LUIGI SANGALETTI¹, GIOVANNI DRERA¹, MARIA CRISTINA MOZZATI², PIETRO GALINETTO², YU A. DIAZ-FERNANDEZ³, LORENZO MALAVASI³, ADOLFO SPEGHINI⁴, and MARCO BETTINELLI⁵ — ¹Dipartimento di Matematica e Fisica, Università Cattolica, Via dei Musei 41, 25121, Brescia, Italy — ²CNISM and Dipartimento di Fisica "A. Volta", Università di Pavia, Via Bassi 6, 27199, Pavia, Italy — ³Dipartimento di Chimica fisica, Università di Pavia, Via Bassi 6, 27100, Pavia, Italy — ⁴DiSTeMeV, Università di Verona and INSTM, UdR Verona, Villa Lebrecht, Via della Pieve 70, 37029 San Floriano, Verona, Italy — ⁵Dipartimento Scientifico e Tecnologico, Università di Verona, Strada Le Grazie 15, 37134 Verona, Italy

The effects of oxygen stoichiometry on the magnetic properties of pure and doped TiO_2 rutile are presented. Ferromagnetism is detected already at room temperature and increases with the concentration of oxygen defects.

THU1F3.2 10:00 Aula 3

Magnetism in $\text{Sr}_3\text{Ru}_2\text{O}_7/\text{Sr}_4\text{Ru}_3\text{O}_{10}$ Eutectic Crystals — •DANILO ZOLA^{1,2}, ROSALBA FITTIPALDI^{1,2}, MASSIMILIANO POLICETTI^{1,2}, ANTONIO VECCHIONE^{1,2}, MARIO CUOCO^{1,2}, FRANCESCO LAVIANO³, ENRICA MEZZETTI³, and SANDRO PACE^{1,2} — ¹SuperMat CNR-INFN Regional Laboratory Salerno, via S. Allende I-84081 Baronissi (SA), Italy — ²Department of Physics "E. R. Caianiello", University of Salerno, via S. Allende, I-84081 Baronissi (SA), Italy

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We discuss the magnetic properties of $\text{Sr}_3\text{Ru}_2\text{O}_7/\text{Sr}_4\text{Ru}_3\text{O}_{10}$ eutectic crystals where the two phases shape a multilayered structure. The magnetism in these crystals cannot be discussed as superimposition of the magnetic properties of the single phases.

THU1F3.3 10:20 Aula 3

Broken Time-Reversal Symmetry in Triplet Superconductor Junctions — PHILIP BRYDON¹, CHRISTIAN INIOTAKIS², •DIRK MANSKE¹, and MANFRED SIGRIST² — ¹Max-Planck-Institut für Festkörperforschung, Stuttgart, Germany — ²ETH-Zürich, Zürich, Switzerland

We demonstrate that the breaking of time-reversal symmetry in Josephson junctions between triplet superconductors stabilizes a magnetic moment at the junction barrier. The consequences of this novel behaviour are investigated.

THU1F3.4 10:40 Aula 3

Modelling of phase transitions in the $R\text{VO}_3$ perovskites — •ANDRZEJ M. OLEŚ^{1,2}, PETER HORSCH¹, GINIYAT KHALIULLIN¹, and LOUIS-FELIX FEINER³ — ¹Max-Planck-Institut FKF, Stuttgart, Germany — ²Jagellonian University, Cracow, Poland — ³Philips Research Laboratories, Eindhoven, The Netherlands

We introduce the spin-orbital superexchange model which unravels the physical mechanisms responsible for the observed phase diagram of the $R\text{VO}_3$ perovskites. It reveals a nontrivial interplay between superexchange, the orbital-lattice coupling and orthorhombic lattice distortions.