

INVITATION

Department of Condensed Matter Physics

Is pleased to invite you to the lecture

Spin-Orbital Entanglement in Mott Insulators

by

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Abstract : In a Mott insulator spin and orbital operators belong to the same Hilbert space and therefore these operators may be entangled. This is best seen in the one-dimensional model in the absence of Hund's exchange. The phase diagram shows then a perfect spin-orbital symmetry. However, this symmetry is broken by Hund's exchange and then the superexchange is disentangled as in the Kugel-Khomskii model, where energy may be gained either by spin or by orbital order. Therefore, the superexchange is either ferromagnetic or antiferromagnetic in the ground state, depending on the direction. Excitations are in general entangled as well and this is mostly unexplored. The spin-orbital models with t_{2g} electrons are even more entangled as seen in cubic vanadium oxides.

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Time: 11:00

Venue: lecture room F1, Building 6, Faculty of Science, Kotlářská 2, Brno

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