Ordered and Quantum Disordered States in Spin-Orbit Coupled Correlated Systems

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We will theoretically explore how the spin-orbit coupling could give rise to the unusual ordered, amorphous or liquid states of the spin-orbital and the spin-lattice degrees of freedom depending on the local d-electron counting and the lattice geometry. From this perspective, we will discuss d^1 and d^2 correlated transition metal compounds, such as molybdenum oxides with double perovskite or pyrochlore structures [1-3] and layered honeycomb materials [4], and provide a brief overview of the available experimental rezults.

References:

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