Origin of Orbital Order in KCuF3 and LaMnO3

AUTHOR: Eva Pavarini

IFF and IAS, Forschungzentrum Juelich

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Orbital-ordering phenomena play a fundamental role in determining the electronic and magnetic properties of many strongly correlated oxides. The origin of orbital-order in real materials is, however, still controversial. The classical examples of orbitally ordered systems are and , two materials with very different physics. Using the LDA+DMFT approach we disentangle the effects of the different lattice distortions, electron localization, and many-body superexchange and clarify the mechanism of orbital-order in these two paradigm compounds [1,2].

[1] E. Pavarini, E. Koch, and A.I. Lichtenstein, Phys. Rev. Lett. **101**, 266405 (2008)
[2] E. Pavarini and E. Koch, arXiv:0904.403.

References