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Dichotomy between Large Local and Small Ordered Magnetic Moments in Iron-Based Superconductors PHILIPP HANSMANN, Vienna University of Technology, RYOTARO ARITA, Department of Applied Physics, University of Tokyo, ALESSANDRO TOSCHI, SHIRO SAKAI, GIORGIO SANGIOVANNI, KARSTEN HELD, Institut for Solid State Physics, Vienna University of Technology — We study a four-band model for iron-based superconductors within the local density approximation combined with dynamical mean-field theory (LDA+DMFT). This successfully reproduces the results of models which take p degrees of freedom explicitly into account and has several physical advantages over the standard five d -band model. Our findings reveal that the new superconductors are more strongly correlated than their single-particle properties suggest. Two-particle correlation functions unveil the dichotomy between local and ordered magnetic moments in these systems, calling for further experiments to better resolve the short time scale spin dynamics.

Philipp Hansmann
Institut for Solid State Physics, Vienna University of Technology

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