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ARPES investigations of parent compounds of 122 Fe-based superconductors and their 3d transition metal cousins PIERRE RICHARD, W.-L. ZHANG, S.-F. WU, A. VAN ROEKEGHEM, P. ZHANG, H. MIAO, T. QIAN, S.-M. NIE, G.-F. CHEN, H. DING, Institute of Physics, Chinese Academy of Sciences, N. XU, Swiss Light Source, S. BIERMANN, Ecole Polytechnique (France), C. CAPAN, Z. FISK, University of California, Irvine, B.I. SAPAROV, A.S. SEFAT, Oak Ridge National Laboratory — It is widely believed that the key ingredients for high-temperature superconductivity are already present in the non-superconducting parent compounds. With its ability to probe the single-particle electronic structure directly in the momentum space, ARPES is a very powerful tool to determine which parameters of the electronic structure are possibly relevant for promoting superconductivity. Here we report ARPES studies on the parent compounds of the 122 family of Fe-based superconductors and their $3d$ transition metal pnictide cousins. In particular, we show that the Fe-compound exhibits the largest electronic correlations, possibly a determining factor for unconventional superconductivity.

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