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ARPES studies of the iron pnictide superconductors MING YI, Stanford University, DONGHUI LU, Stanford Synchrotron Radiation Lightsource, JAMES ANALYTIS, JIUN-HAW CHU, Stanford University, SUNG-KWAN MO, Advanced Light Source, RUIHUA HE, Stanford University, MAKOTO HASHIMOTO, Advanced Light Source, ROB MOORE, Stanford Synchrotron Radiation Lightsource, IGOR MAZIN, Naval Research Laboratory, DAVID SINGH, Oak Ridge National Laboratory, IAN FISHER, ZHI-XUN SHEN, Stanford University — A lot of progress has been made in understanding the family of iron-based pnictide superconductors since its discovery. However, many issues still remain. Here we use angle-resolved photoemission to study the electronic structures of various pnictide materials. Specifically, through a systematic high-resolution study of the parent compounds (Ba,Sr)Fe_2As_2, we show that the electronic structures of these materials are significantly reconstructed across the spin density wave transition, which cannot be described by a simple folding scenario of conventional density wave ordering. Moreover, we find that LDA calculations with an incorporated suppressed magnetic moment of $0.5\mu_B$ can match well the details in the reconstructed electronic structure, suggesting that the nature of magnetism in the pnictides is more itinerant than local, while the origin of suppressed magnetic moment remains an important issue for future investigations.

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