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Electronic band structure of $BaCo_2As_2$: a fully-doped ferropnictide with reduced electronic correlations PIERRE RICHARD, N. XU, Institute of Physics, Chinese Academy of Sciences, A. VAN ROEKEGHEM, Institute of Physics, Chinese Academy of Sciences, and Ecole Polytechnique (France), P. ZHANG, H. MIAO, W.-L. ZHANG, T. QIAN, Institute of Physics, Chinese Academy of Sciences, M. FERRERO, Ecole Polytechnique (France), A. S. SEFAT, Oak Ridge National Laboratory, S. BIERMANN, Ecole Polytechnique (France), H. DING, Institute of Physics, Chinese Academy of Sciences — We report an angle-resolved photoemission spectroscopy investigation of the Fermi surface and electronic band structure of $BaCo_2As_2$. Although its quasi-nesting-free Fermi surface differs drastically from that of its Fe-pnictide cousins, we show that the $BaCo_2As_2$ system can be used as an approximation to the bare unoccupied band structure of the related $BaFe_{2-x}Co_xAs_2$ and $Ba_{1-x}K_xFe_2As_2$ compounds. However, our experimental results, in agreement with dynamical mean field theory calculations, indicate that electronic correlations are much less important in $BaCo_2As_2$ than in the ferropnictides. Our findings suggest that this effect is due to the increased filling of the electronic $3d$ shell in the presence of significant Hund's exchange coupling.

Pierre Richard
Institute of Physics, Chinese Academy of Sciences

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