

Abstract Submitted  
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**The effects of local correlations on the electronic structure of FeSe**<sup>1</sup> MATTHEW WATSON, TIMUR KIM, Diamond Light Source, Harwell Campus, Didcot, OX11 0DE, AMIR HAGHIGHIRAD, AMALIA COLDEA, Clarendon Laboratory, Department of Physics, University of Oxford, Parks Road, Oxford OX1 3PU — FeSe is structurally the simplest of Fe-based superconductors, but its complex and unique properties pose important theoretical questions. One important aspect of the physics of FeSe is the understanding of the strength and effects of electronic correlations. In order to explore this, we have performed angle-resolved photo-emission spectroscopy (ARPES) measurements on high quality bulk single crystals of FeSe over a wide range of binding energies, in different scattering geometries and with varying incident photon energies, analysing the quasiparticle renormalisations, scattering rates and degree of coherence. We find that FeSe exhibits moderately strong, orbital-dependent correlation effects which are understood to arise primarily due to local electron-electron interactions on the Fe sites. We conclude that electronic correlations constitute a key ingredient in understanding the electronic structure of FeSe.

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