Abstract Submitted
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Spin Polarised STM study of Magnetism in the non-superconducting parent compound of Iron Chalcogenide Superconductors CHRISTOPHER TRAINER, CHI MING YIM, PETER WAHL, University of St Andrews, CHRISTOPHER STOCK, University of Edinburgh, VLADIMIR TSURKAN, ALOIS LOIDL, University of Augsburg — Magnetism is thought to play an important role in the development of the superconductivity in the Iron chalcogenide superconductors. In the parent material, FeTe, the magnetic phase diagram is very complex with unusual magnetic states developing as a function of excess Iron doping.[1] We have conducted a spin-polarized scanning tunnelling microscopy study on samples of FeTe with different levels of excess Iron concentrations by in-situ prepared magnetic tips [2,3]. Using a ferromagnetic tip in an STM in a vector magnetic field, we have been able to map out the magnetic order at the surface on an atomic scale in all three spatial directions. I will show how the magnetic structure changes locally as well as a function of excess iron doping, and discuss the results in comparison with neutron scattering. [1] E.Rodriguez et al. Phys. Rev. B 84 064403 [2] M.Enayat et al. Science. 345, 6197, p. 653-656 4 p. [3] U.R.Singh et al. Physical Review. B 91, 16, 161111

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