

Thermodynamic Evidence of Strong Correlations and proximity to a Mott Insulating State in Iron Pnictide Superconductors

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High-T_c superconductivity in the cuprates occurs at the crossover from a correlated Mott insulating state to a weaker correlated Fermi liquid as a function of doping. The Fe-pnictides were initially thought to be weakly correlated. However, we have recently shown that KFe₂As₂ is in fact a highly correlated metal and that these correlations are even further enhanced in Rb- and CsFe₂As₂. Whereas the correlations in the cuprates result from a large value of the Hubbard U, recent works have stressed the particular relevance of Hund's coupling J in the pnictides. Our data may be interpreted in terms of a close proximity to an orbital- selective Mott transition [1]. We now have good thermodynamic data covering both the hole and electron doping sides of the BaFe₂As₂ system and we will discuss how these correlations are modified by doping and uniaxial pressure.

[1] F. Hardy *et al.*, arXiv:1605.05485