

Abstract Submitted
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Superconductivity in SrFe_{2-x}Co_xAs₂: Internal Doping of the Iron Arsenide Layers HELGE ROSNER, ANDREAS LEITHE-JASPER, WALTER SCHNELLE, CHRISTOPH GEIBEL, MPI CPfS Dresden — In the strontium iron-cobalt arsenides SrFe_{2-x}Co_xAs₂ ($0.2 \leq x \leq 0.4$) superconductivity with T_c up to 20 K is observed in magnetic susceptibility, electrical resistivity, and specific heat data. This first observation of bulk superconductivity induced by electron doping in this family of compounds – despite strong disorder in the Fe-As layer – favors an itinerant electronic theory in contrast to the strongly correlated cuprates and renders a *p*- or *d*-wave pairing unlikely. The magnetic ordering present in SrFe₂As₂ is rapidly suppressed by substitution of Fe by Co. DFT calculations show that this is due to a rigid down-shift of the Fe-3 $d_{x^2-y^2}$ -related band edge in the density of states.

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