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Phase diagram of superconductivity and antiferromagnetism in single crystals of Sr(Fe1-xCox)2As2 and Sr1-yEuy (Fe0.88Co0.12)2As2[1]
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We report magnetic susceptibility, resistivity and heat capacity measurements on single crystals of $Sr(Fe_{1-x}Co_x)_2As_2$ and $Sr_{1-x}Eu_x(Fe_{0.88}Co_{0.12})_2As_2$ series. The optimal Co concentration for superconductivity in $Sr(Fe_{1-x}Co_x)_2As_2$ is determined to be $x = 0.117$. Based on this we grew members of the $Sr_{1-y}Eu_y$ series to examine the effects of well defined local moment scattering on the superconducting state. We show the evolution of superconductivity and development of antiferromagnetism across the whole doping range. The suppression of superconductivity within Abrikosov-Gor'kov's theory and de Gennes scaling as well as the antiferromagnetic transition temperature will be discussed.

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