

Abstract Submitted  
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**Relation of structure, magnetism, doping and pressure in  $\text{AFe}_{2-x}\text{T}_x\text{As}_2$  (T=Co,Rh,Ru)** HELGE ROSNER, WALTER SCHNELLE, DEEPA KASINATHAN, MIRIAM SCHMITT, ULRICH SCHWARZ, MICHAEL NICKLAS, CHRISTOPH GEIBEL, ANDREAS LEITHE-JASPER, MPI CPFS Dresden, Germany — We present an overview of our recent investigations on the  $\text{SrFe}_{2-x}\text{T}_x\text{As}_2$  (T = Co, Ru, Rh) compounds. In our joint experimental and theoretical study, we report the influence of hydrostatic pressure and substitution at the Fe site on the magneto-structural and superconducting transitions. The magnetism is weakened upon the application of pressure as indicated by resistivity, X-ray data and density functional band structure calculations. Similar to substitution on the Sr site, substitutions on the Fe-site quench the magnetic transition and induce bulk superconductivity with  $T_c$  up to 20 K for ambient pressure and up to 27 K for underdoped  $\text{SrFe}_{2-x}\text{Co}_x\text{As}_2$  for pressures of 2.6GPa. In our analysis, we attempt to disentangle the interplay of charge doping and structural changes induced by the substitution and by external pressure.

Helge Rosner  
MPI CPFS Dresden, Germany

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