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Phase diagrams and physical properties of $\text{Ba}(\text{Fe}_{1-x}\text{TM}_x)_2\text{As}_2$ (TM = Co, Ni, Cu, Rh, Pd)¹

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A brief overview and summary of the effects of transition metal (Co, Ni, Cu, Pd, and Rh) doping on physical properties of BaFe_2As_2 will be presented. A comparison of the phase diagrams for different dopants will be examined in detail. A range of experimental parameters that allow for the stabilization of superconductivity will be outlined. The evolution of physical properties with doping, in particular, a possible Lifshitz transition at low doping as inferred from thermoelectric power and Hall measurements (as well as ARPES) will be examined. In addition, a “universal” behavior of specific heat jump at T_c will be discussed.

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