Coexistence of superconductivity and ferromagnetism in the *d*-band metal Y_9Co_7

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Transport and thermodynamic properties of the binary intermetallic compound Y_9Co_7 [1] have been re-investigated through precision low-temperature measurements performed on a high quality polycrystalline sample. Our results provide solid evidence for a coexistence of itinerant ferromagnetism and superconductivity in Y_9Co_7 below $T_{sc} = 2.9\,K$, as opposite to previous beliefs that superconductivity occurs in the paramagnetic phase embedded in a basically normal magnetic environment. Additionally, we demonstrate that the clean-limit condition is satisfied for a pure sample of this sole *d*-band ferromagnetic superconductor. Thus, the question whether magnetic fluctuations contribute in a formation of Cooper pairs in Y_9Co_7 remains open.

References:

[1] A. Kołodziejczyk *et al.*, J. Phys. F: Met. Phys. **10**, L333 (1980).