

## Coexistence of Superconductivity and Itinerant Ferromagnetism; $Y_9Co_7$ as an Example

A. Kołodziejczyk  
Department of Solid State Physics,  
AGH University of Science and Technology,  
30-059 Cracow, Poland;  
e-mail: [akolo@uci.agh.edu.pl](mailto:akolo@uci.agh.edu.pl)

**Abstract** - The discovery of superconductivity in  $Y_9Co_7$  that exhibited at the same time the itinerant ferromagnetism was a big surprise because it showed that the two incompatible phenomena might be reconciled at some temperatures under certain thermodynamic conditions. It was 27 years ago. The recently discovered itinerant ferromagnetic superconductors are those strongly correlated electron compounds:  $UGe_2$ ,  $UGeRh$  and likely also  $ZrZn_2$ . This review is concentrated on the present thinking about and activities on the problem of coexistence of itinerant ferromagnetism and superconductivity with special emphasis on the first weak itinerant spin- fluctuating ferromagnetic superconductor  $Y_9Co_7$ .

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