Journal of Experimental and Theoretical Physics 2014 vol.118 N5, pages 760-764

Evolution of the 4f electron localization from YbRh2Si 2 to YbRh2Pb studied by electron spin resonance

Ivanshin V., Litvinova T., Ivanshin N., Pöppl A., Sokolov D., Aronson M.
Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

We report on electron spin resonance (ESR) experiments on the Heusler alloy YbRh2Pb and compare its spin dynamics with that of several other Yb-based intermetallics. A detailed analysis of the derived ESR parameters indicates the extremely weak hybridization, more localized distribution of the 4f states, and a smaller RKKY interaction in YbRh2Pb. These findings reveal the important interplay between hybridization effects, chemical substitution, and crystalline electric field interactions that determines the ground state properties of strongly correlated electron systems. © 2014 Pleiades Publishing, Inc.

http://dx.doi.org/10.1134/S1063776114050033