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ESR study of spin dynamics in the ternary phosphide YbRh 6P 4

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Abstract

We have used electron spin resonance (ESR) to investigate the YbRh 6P 4 powder samples. It is shown that the exotic ESR absorption is caused here by hybridization effects between the Yb 4 f-orbitals and the wave functions of the conduction electrons (CE) of the outer electronic shells. A broadening and disappearance of the ESR line at temperatures above 10 K can be explained by the processes of the spin-lattice relaxation of the Yb 3+ ions through the first excited Stark sublevel with an activation energy $\Delta \approx 82.1$ K.

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