ESR STUDY OF MAGNETIC ANISOTROPY IN $YbNiAl_2$.

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We report results of the high frequency (~95 GHz) electron spin resonance (ESR) study of the novel strongly correlated Yb-based Kondo lattice intermetallic $YbNiAl_2$. The nature of the ground state in Kondo lattice materials depends on the competition between the Kondo effect and the Ruderman–Kittel–Kasuya–Yosida interactions. The ESR is observed for the first time at temperatures below 20 K. Significant broadening and disappearance of ESR line at temperatures above 15 K can be explained by the processes of the spin-lattice relaxation of the Yb^{3+} ions via the first excited Stark doublet with the activation energy $\Delta \approx 96$ K [1]. Measurements of specific heat and magnetization are in agreement with earlier reports, indicating an antiferromagnetic transition at $T_N = 4.8$ K, a field-induced ferromagnetic order above 9.3 kOe, and a pronounced magnetic anisotropy. We discuss a possible relevance of our results with those obtained in the quantum critical system $YbRh_2Si_2$ described in the very recent theory of Wölfle and Abrahams [2]. Strong correlation between magnetic anisotropy and ESR observability in some dense Kondo lattices with FM fluctuations is proposed.

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