Kondo Effect in YCe under Pressure



Fig. 2. The magnetic part of the resistance of Y 1 at.% Ce at various pressures and some fitted curves (solid lines) calculated from Hamann's equation.

application of pressure shifts the Kondo anomaly rather drastically to higher temperatures. One notes that for zero pressure the resistance anomaly is rather well described by Hamann's function for $\rho_m(T)$ over two decades of temperature (solid lines). The smaller dots represent zero-pressure data, which were obtained after removal of pressure from 25.3 kbar. With increasing pressure a deviation from the Hamann-type behavior starts to develop above 30°K, which may be due to a deviation from Matthiessen's rule, as suggested by Loram *et al.* for *CuFe*, *AuFe*, and *CuAuFe* alloys.¹¹ Hamann fits for higher pressures were thus obtained from the curvature of the data between 8 and 30°K. The fit parameters are given in Table I. While the magnitude of the anomaly $\rho_m(0)$ stays close to 8 m Ω (2.3 $\mu\Omega$ cm) up to 30 kbar, the Kondo temperature rises to approximately 110°K.

In conclusion, a monotonic shift of $T_{\rm K}$, but no magnetic transition, was observed. The results strongly support our earlier results on *La*Ce.

p, kbar	T_K , °K	S	$\rho_m(0), \mu\Omega$ -cm
0	17 ± 0.3	0.11	2.26
5.8	21 ± 1	0.14	2.44
10.8	31 ± 1	0.16	2.46
15.8	40 ± 2	0.20	2.46
20.7	60 ± 3	0.25	2.44
25.3	80 ± 5	0.20	2.55
0	17 ± 0.5	0.11	2.26
30	110 ± 15	0.20	2.32
40	(140 ± 40)	(0.20)	2.32

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	0	61	0	
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