substance: PrH_x
property: crystal structure, physical properties

crystal structure		cubic (O_h^5 – Fm3m)	61W, 62P
lattice parameter			
a	5.486 Å	x = 3	66K
Debye temperature			
Θ_D	231 K	x = 2.65	79D

Figures and futher references:

crystal structure: Fig. 1

lattice parameter vs. x: Fig. 3

heat capacity [79D]

metal-semiconductor transition [79D, 79B] and molar heat capacity: Fig. 2
For valence band XPS-spectrum see Fig. 4

References:

55H Holley, C. E., Mulford, R. N. R., Ellinger, F. H., Koehler, W. C., Zachariasen, W. H.: J. Phys. Chem. 59 (1955) 1226.

61W Warf, J. C., Hardcastle, K.: Final Report, Office of Naval Research, Contract 228 (1961) 15.

62P Pebler, A., Wallace, W. E.: J. Phys. Chem. 66 (1962) 148.

66K Korst, W. L., Warf, J. C.: Inorg. Chem. 5 (1966) 1719.

79B Bieganski, Z., Stalinski, B.: Z. Phys. Chem. Neue Folge 116 (1979) 109.

79D Drulis, M., Bieganski, Z.: Phys. Status Solidi (a) 53 (1979) 277.

79M Müller, H., Knappe, P., Greis, O.: Z. Phys. Chem. 114 (1979) 45.

85O Osterwalder, J: Z. Phys. B 61 (1985) 113.

Fig. 1.

REH_x. Unit cell of the CaF_2-type structure.

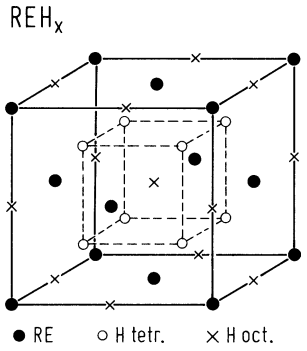

Fig. 2.

RH_x, R = La, Ce, Pr, Nd, Sm. Molar heat capacities vs. temperature. The maxima at about 250 K are attributed to metal-semiconductor transitions. No anomaly was found for $CeH_{2.96}$ and $SmH_{2.84}$ in this temperature range [79B].

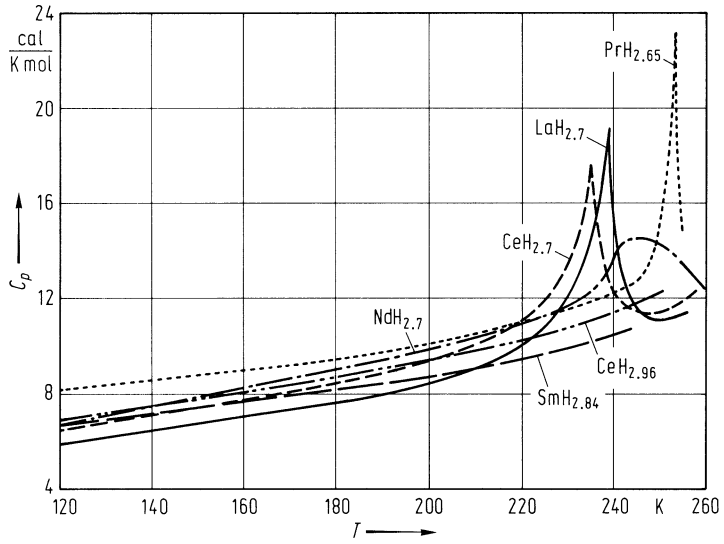

Fig. 3.

PrH_x, PrD_x. Lattice parameters vs. x from various authors [79M]. Data from [55H, 62P, 66K, 79M].

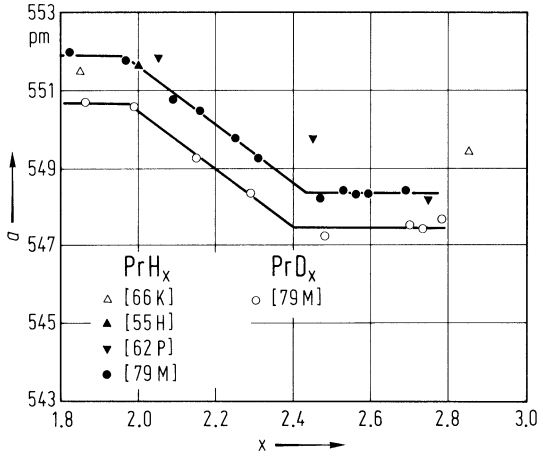

Fig. 4.

RH_x. Valence band spectra for La, Y, Ce, and Pr and for their phase boundary and trihydride compositions from XPS. Data for the metals are shown by dotted lines [85O].