substance: LaD_x
property: crystal structure, physical properties

crystal structure		cubic (O_h^5 – Fm3m)	79M
semiconductor:	$2.89 \leq x \leq 3$	$T < 210$ K	80B
energy gap			
E_g	0.1 eV	$T < 210$ K, x = 3	80B
Debye temperature			
Θ_D	246.3 K	x = 3	83I

Figures:

crystal structure: Fig. 1

lattice parameter vs. x: Fig. 2

temperature dependence of **heat capacity** and **metal-semiconductor transition**: Fig. 3

References:

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Fig. 1.

REH_x. Unit cell of the CaF_2-type structure.

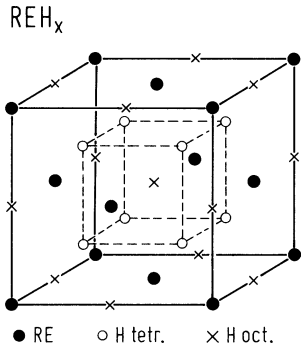

Fig. 2.

LaH_x, LaD_x. Lattice parameters of LaH_x (a) and LaD_x (b) as a function of x. For comparison the data of previous works are also shown [79M]. Data from [53Z, 55H, 55S, 59G, 66K, 66M, 79M].

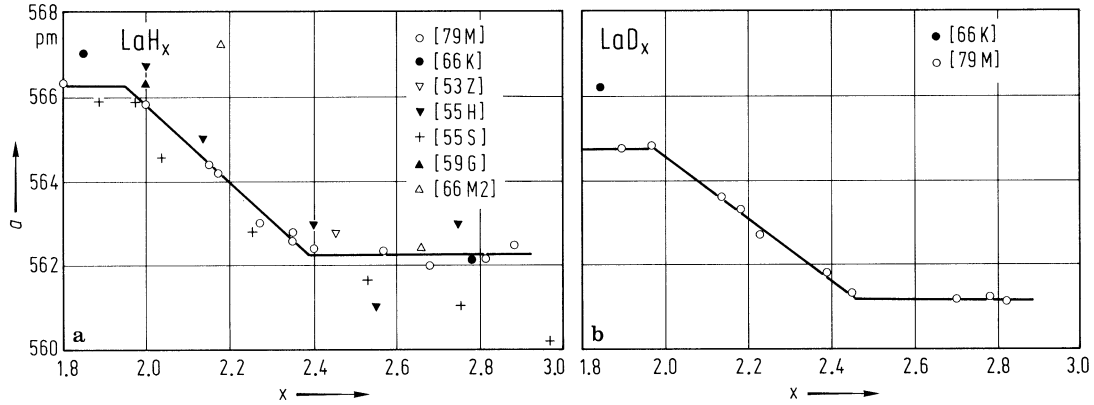

Fig. 3.

LaH_3, LaD_3. Temperature dependence of heat capacities. I, II, III and IV denote phase transitions. α: semiconductor; β: metal; γ, δ, ε: phases with different H- and D-distribution on lattice sites [83I].