substance: MnO
property: transport data, low and intermediate temperatures

At low and intermediate temperatures (< 500 K), single crystal data on pure MnO are collected in Figs. 1a, 1b. Material is p-type in this region with characteristic properties:

activation energy for conductivity

E_A	0.7...0.8eV			81P, 80J, 76K, 71K

hole mobility

μ_p	$1.8 \cdot 10^{-5}$ ...$1.7 \cdot 10^{-2}$ $cm^2/V\ s$	T = 230...500 K	from thermopower and conductivity data	81P
	10^{-3}...10^{-2} $cm^2/V\ s$	T = 420...870 K	from Seebeck data; in this study [74A] the activation energy associated with the Seebeck coefficient decreased from 0.65...0.45 eV with stoichiometry; the more nearly stoichiometric the sample the lower the energy	74A

activation energy for hole mobility

E_A	0.45 eV	T = 250...500 K	thermopower measurement	81P
	0.22 eV	T = 420...820 K	thermopower measurement	74A

electron mobility

μ_n	5...18 $cm^2/V\ s$	T = 350...900 K	Hall mobility of an n-type sample; the mobility showed a maximum near 500 K; see also Fig. 2	71K

References:

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Fig. 1.

MnO. (a) Resistivity vs. reciprocal temperature; *a* [81P], *b* [80J], *c* [76K], *d* [71K]. (b) Thermoelectric power vs. reciprocal temperature; *a*...*d* as for Fig. (a). (c) Hole mobility (log scale) vs. temperature; dashed line: calculated directly from conductivity and thermogravimetric data, solid line: averaged [67H].

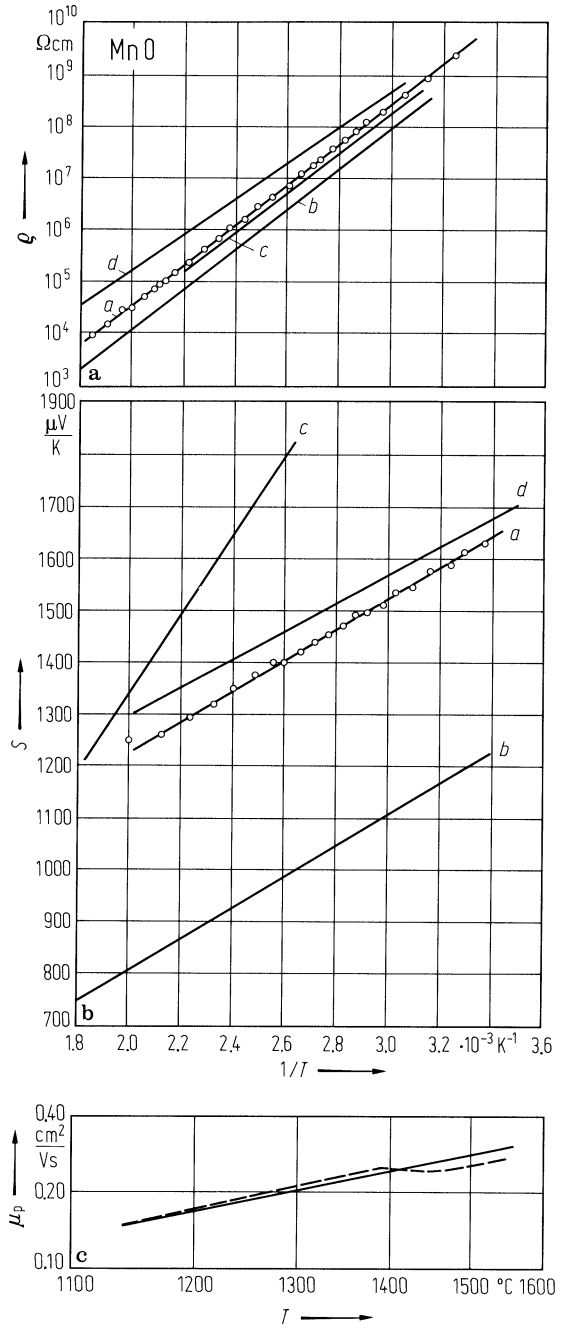

Fig. 2.

MnO. Hall mobility of photoelectrons vs. temperature for various crystals *1* as grown, *2* annealed in p_{CO_2}/p_{H_2} = 0.1, *3* annealed in p_{CO_2}/p_{H_2} = 1.0 [77U].