No. 1A-3 $AgNbO_3$, Silver niobate

(M = 248.77)

1a Dielectric anomaly in $AgNbO_3$, associated with a phase transition, was reported by Francombe et al. [a]) in 1958. Ferroelectric activity on phase VI was confirmed by Kania et al. [b]) in 1984. [a]) 58Fra [b]) 84Kan

b

phase	VI	V	IV	III	II	I	
state	F						
crystal system	mono-clinic	mono-clinic	mono-clinic	ortho-rhombic	tetra-gonal	cubic	83Luk
Θ [K]	340	509	609	643	861		83Luk, 87Pis

ρ = $6.783 \cdot 10^3$ kg m^{-3}. 83Luk

4 Unit cell parameters of pseudocubic cell: Fig. 1A-3-001, Fig. 1A-3-002.

5a Dielectric constant: Fig. 1A-3-003; see also 84Kan
Effect of pressure on dielectric constant: Fig. 1A-3-004.
Effect of pressure on Θ: Fig. 1A-3-005.

c Spontaneous polarization: Fig. 1A-3-006.

6a Transition heat, transition entropy: Table 1A-3-001.

10a Raman scattering: Fig. 1A-3-007; see also 85Fon
Raman scattering on $AgNbO_3$ and $AgTa_{1-x}Nb_xO_3$: 92Haf

15 Observation of domain structure: 83Luk, 89Ver

Table 1A-3-001. $AgNbO_3$. Transition temperatures Θ, transition heats per mole ΔQ_m and transition entropies per mol ΔS_m [83Luk].

	Θ [K]	ΔQ_m [$\cdot 10^3$ J mol^{-1}]	ΔS_m [J mol^{-1}K^{-1}]
Ceramics	620	0.39	0.62
	658	0.11	0.16
	858	0.17	0.20
Single crystals	620	0.43	0.69
(AgCl flux)	653	0.11	0.16
	855	0.18	0.21

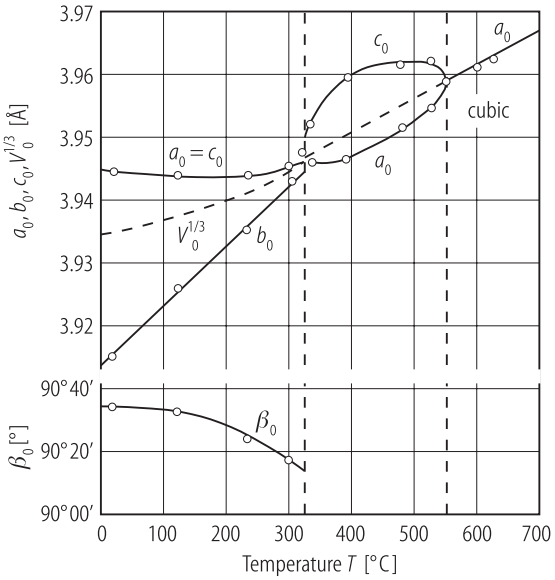

Fig. 1A-3-001. $AgNbO_3$. Lattice parameters of pseudocubic cell vs. *T* [58Fra].

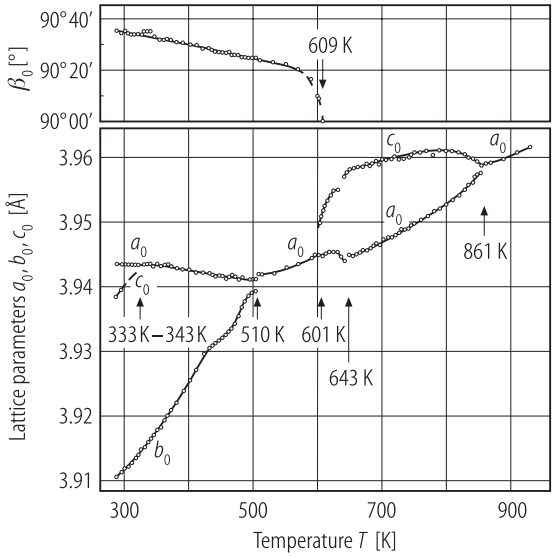

Fig. 1A-3-002. $AgNbO_3$. Lattice parameters of pseudocubic cell vs. T [83Luk].

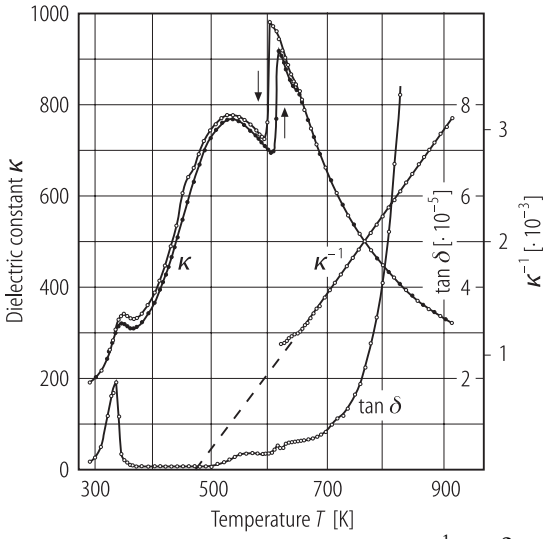

Fig. 1A-3-003. $AgNbO_3$ (ceramics). κ, κ^{-1}, $\tan\delta$ vs. T [83Luk]. f = 1 MHz.

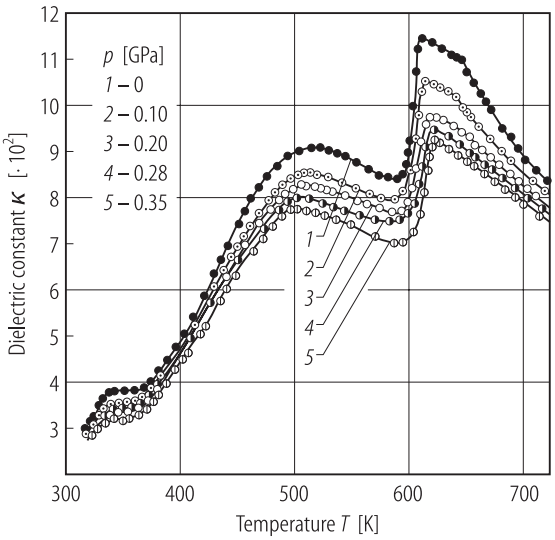

Fig. 1A-3-004. $AgNbO_3$ (ceramics). κ vs. T [87Pis]. Parameter: p. f = 1 MHz.

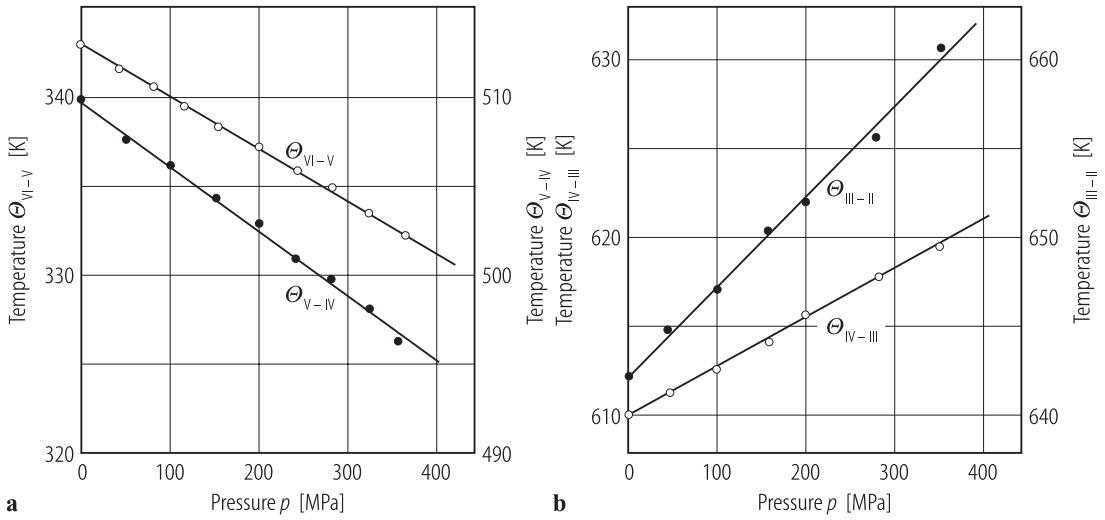

Fig. 1A-3-005. $AgNbO_3$ (ceramics). Θ_{III-II}, Θ_{IV-III}, Θ_{V-IV}, Θ_{VI-V} vs. p [87Pis]. Transition temperatures were determined by anomalies of κ.

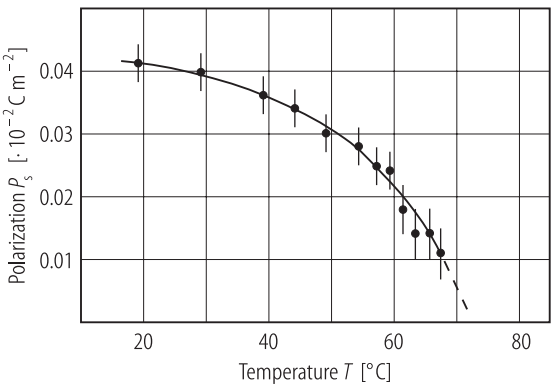

Fig. 1A-3-006. $AgNbO_3$ (ceramics). P_s vs. T [84Kan].

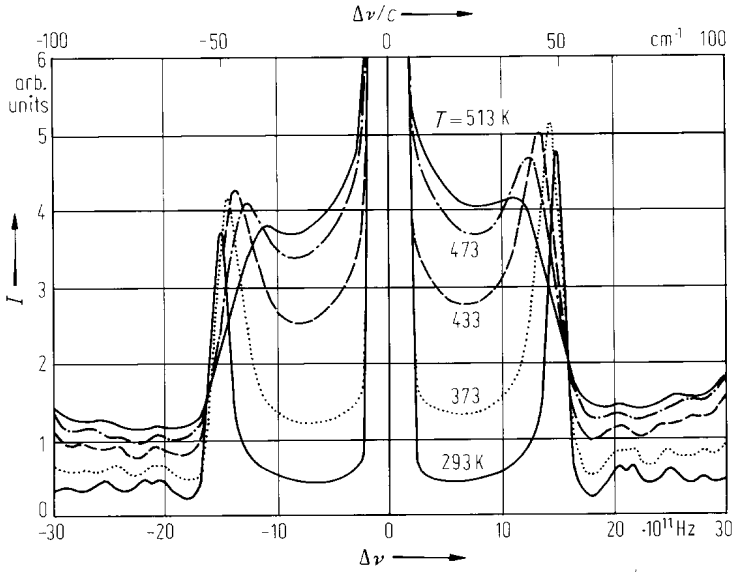

Fig. 1A-3-007. $AgNbO_3$ (ceramics). I vs. $\Delta\nu$ [86Kan]. I : intensity of Raman scattering. $\Delta\nu$: Raman frequency shift. Parameter: T.

References

58Fra Francombe, M.H., Lewis, B.: Acta Crystallogr. **11** (1958) 175.

83Luk Lukaszewski, M., Pawelczyk, M., Handerek, J., Kania, A.: Phase Transitions **3** (1983) 247.

84Kan Kania, A., Roleder, K., Lukaszewski, M.: Ferroelectrics **52** (1984) 265.

85Fon Fontana, M.D., Kugel, G.E., Kania, A., Roleder, K.: Jpn. J. Appl. Phys. **24**, Suppl. 24–2 (1985) 516.

86Kan Kania, A., Roleder, K., Kugel, G.E., Fontana, M.D.: J. Phys. C **19** (1986) 9.

87Pis Pisarski, M., Dmytrow, D.: Ferroelectrics **74** (1987) 87.

89Ver Verwerft, M., Van Tendeloo, G., Van Landuyt, J., Amelinckx, S.: Ferroelectrics **97** (1989) 5.

92Haf Hafid, M., Kugel, D.G.E., Kania, A., Roleder, K., Fontana, M.D.: J. Phys. Condens. Matter **4** (1992) 2333.