

of the field was almost totally excluded because the time for establishment of polarization was considerably longer than the half-period of the applied voltage.

The figure shows the amplitudes of two TSC maxima for one crystal as a function of the amplitude of the applied alternating voltage. In the absence of a transverse field two maxima were found at -250 and -230°C (there were no other maxima right up to $+50^\circ\text{C}$), which correspond to the level depths of ≈ 0.04 and 0.075 eV, respectively. A strong dependence of the TSC maxima on the amplitude of the applied voltage was observed. The value of I_m (the maximum stimulated current) at 600 V ($\Delta t = 100$ msec) was reduced by a factor of about 100 in the case of the 0.04 -eV level. This change is considerably greater than the change of the TSC current reported by Böer and Kümmel [4].

Since a large change of I_m was also observed at relatively low voltages (200 V), which correspond to fields of $(2 - 5) \cdot 10^4$ V/cm in the crystal, it was assumed that the hole levels were not ionized. A dependence of the TSC maxima on the wavelength of light and on the field on it was also observed. A study of the dependence $I_m(\Delta t)$ indicated that considerable emptying of levels occurred during a time interval of the order of several hundreds of milliseconds.

The results obtained indicate that it is in principle possible to determine both the mechanism of the action

of the field on the levels (tunnel effect from the levels to a band, impact ionization) and the quantitative characteristics of this mechanism. For this purpose it is necessary to study the dependence $I_m(V)$ and $I_m(\Delta t)$ together with the kinetics of photoconductivity at low temperatures, and to determine (from the TSC curves in the absence of a field) the trapping level parameters.

The authors thank Academician of the Ukrainian Academy of Sciences V. E. Lashkarev for his interest and valuable criticism.

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All abbreviations of periodicals in the above bibliography are letter-by-letter transliterations of the abbreviations as given in the original Russian journal. Some or all of this periodical literature may well be available in English translation. A complete list of the cover-to-cover English translations appears at the back of this issue.

X-ray

POLYMORPHIC TRANSFORMATION OF NaCl

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Translated from Fizika Tverdogo Tela, Vol. 4, No. 7,
pp. 1965-1966, July, 1962
Original article submitted March 19, 1962

Up to now polymorphic transformations under the effect of pressure have been observed in the case of potassium and rubidium halides. An x-ray analysis of RbI was made by Jacobs [1], that of RbCl by Vereshchagin and Kabalkina [2], and that of KI by Jamieson [3]. In all cases it was shown that the phase which has the NaCl type structure under normal conditions acquires the CsCl type structure under the effect of high pressure.

We have observed an analogous transformation in the case of NaCl under a pressure of about $1.8 \cdot 10^4$ kg/cm². X-ray photographs (see figure) obtained by the method described earlier [4] show eight clearly visible lines be-

longing to the new phase. Indexing showed that the high-pressure phase of NaCl has a CsCl type structure with a lattice constant of $a_0 = 3.39 \pm 0.06$ Å at atmospheric pressure (see table).

The density of the new phase is $\rho_0 = 2.535$ g/cm³; the jump in the specific volume occurring as the result of the transformation is $\Delta V = 14.2\%$.

If we follow Gol'dshmidt's conclusion [5] that the transformation is accompanied by a change in the coordination number from 6 to 8, which leads to a 3% increase in the distance between the different kinds of atoms, we can calculate the lattice constant of the new

July 1962