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FEATURES OF THE BEHAVIOR OF THE ORDER PARAMETER IN THE SUPERIONIC CRYSTAL LAF_3

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ABSTRACT

The temperature behavior of the physical quantity η, called the order parameter and determining the degree of disordering of the lattice of an ion-conducting material is analyzed. As an object of study, we took the LaF_3 superionic crystal from an extensive class of materials in which the transition from the dielectric to the superionic phase is determined by the disordering of one of the sublattices, which is smeared in a certain temperature range, and is not accompanied by a significant rearrangement of the crystal lattice structure. It was shown that at the critical point T_c = 263 K, the disordering of the anionic sublattice LaF_3 does not end, but continues at higher temperatures.

KEYWORDS: *Superionic Conductors, LaF_3 Nanocrystal, Internal Motion*

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