Abstract Submitted
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Effects of Pressure and Electric Field on the Relaxational Dielectric Properties of $K_{0.97}Li_{0.03}O_3$ (KLT-3)[1] GEORGE SAMARA, ROBERT GRUBBS, EUGENE VENTURINI, Sandia Labs, LYNN BOATNER, Oak Ridge — The temperature dependence of the dielectric response of KLT-3 shows no evidence of a thermodynamic phase transition, but reveals two prominent relaxational features associated with the off-center Li^+ ion, one attributed to the hopping of the Li^+ dipole and the other with the reorientation of Li^+ - Li^+ ion pair. Both relaxations are Debye-like and follow Arrhenius kinetics, the energy barriers decreasing with pressure. While pressure favors the relaxational behavior, a biasing *dc* electric field favors long-range order of the dipolar system. The interplay between pressure and field provides additional insight. Pressure suppresses the magnitude of the $\varepsilon\prime$(T) response over the whole temperature range The results allow evaluation of the contributions of the soft mode and of the Li^+ dipoles to the measured $\varepsilon\prime$(T) response.

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