Position and Current Dependence of Charge-Density-Wave Polarization Dynamics[1] L. LADINO, J.W. BRILL, University of Kentucky — We have studied the frequency and position dependence of charge-density-wave (CDW) polarization by simulating the response to square-waves of variable amplitude and frequency using parameters appropriate for niobium triselenide at T = 90 K, in its upper CDW state. For these simulations, we have numerically solved the phase-slip augmented diffusion model introduced by Adelman *et al* (Phys. Rev. B <u>53</u>, 1833 (1996)) for time domain studies. At each position in the sample, the frequency dependence was fit to a modified harmonic oscillator expression and the position and current dependence of the fitting parameters determined. In particular, both the delay time (1/resonant frequency) and relaxation time decrease with increasing current (and phase-slip rate) and increase with distance from the contact, with the delay time vanishing adjacent to the contact, as experimentally observed with electro-optic measurements in blue bronze. No decay of the polarization at long times is observed however, in contrast to electro-optic results.

Joseph Brill
University of Kentucky

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