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Temperature Dependence of the Electro-Optic Relaxation Time of Blue Bronze JOSEPH BRILL, LUIS LADINO, MARIO FREAMAT, MIRAJ UDDIN, University of Kentucky, DAMIR DOMINKO, University of Kentucky and Institute of Physics, Zagreb — We have measured the temperature dependence of the electro-transmittance of the quasi-one dimensional charge-density-wave (CDW) conductor blue bronze at temperatures between 55 K and 125 K when square-wave voltages are applied to the sample. For voltages well-above the threshold for non-linear current, the characteristic electro-optic relaxation time, at a given position in the sample, depends primarily on the CDW current, whereas the magnitude of the relative change in transmittance decreases with decreasing temperature even for constant CDW current. At lower voltages, the frequency dependence of the response broadens, suggesting non-uniform and temperature dependent barriers to CDW repolarization. This research was supported by NSF grant # DMR-0400938.

Joseph Brill
University of Kentucky

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