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Linear electro-optic effect in strained $BaTiO_3$ ALEX DEMKOV, KURT FREDREICKSON, The University of Texas — The nominal perovskite ABO_3 structure is cubic and centro-symmetric. Therefore, by symmetry there should be no linear electro-opitc (EO) effect. However, perovskites are known to experience various lattice distortions that result in reduced symmetry. The ferroelectric transition in $BaTiO_3$ (BTO) is one obvious example. Below 393 K the cell becomes tetragonal and Ti shifts away from the center of inversion and produces a dipole moment and a robust linear EO or Pockels effect. In this talk I will discuss how the EO response in BTO can be enhanced by strain and show our recent results obtained with density functional theory. This work was supported by the Air Force Office of Scientific Research (Grant FA9550–12–10494)

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