

Abstract Submitted
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Optical Coherent Control of Lattice Deformations in Organic Semiconductors M. V. KATKOV, C. PIERMAROCCHI, Michigan State University — We investigate theoretically a semiconducting polymer chain under the effect of an intense off-resonant laser field. The coherent polarization induced by the field couples to the lattice and causes local deformations. Due to the off-resonant nature of the excitation, the deformations are reversible and controllable by the intensity and frequency of the laser. We derive and solve numerically a nonlinear equation describing the distribution of the optical polarization in the chain. Localized solutions exhibit characteristic saturation features. We analyze the light-induced force acting on the lattice in the case of polydiacetylene.

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