

Abstract Submitted
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Nonlinear Refractive Index in a Novel Nano-optical Material Based on the Nonconjugated Conductive Polymer, Poly(β -pinene) A. NARAYANAN, J. TITUS, MRINAL THAKUR — Two-photon absorption in a novel nano-optical polymer based on the nonconjugated conductive polymer, iodine-doped poly(β -pinene) has been recently reported. In the present report, we will discuss measurement of the nonlinear refractive index (n_2) of iodine-doped poly(β -pinene). The measurement has been made using 150 fs pulses from a Ti:Sapphire laser. Time-resolved measurement has been made using pump-probe technique in which the phase change in the probe beam was measured from the intensity-induced birefringence while the pump pulse was overlapped. The measured value of the nonlinear refractive index is larger than $10^{-5}\text{cm}^2/\text{MW}$ at 800 nm. The results show that the measured n_2 is of electronic origin. This exceptionally large magnitude of n_2 has been attributed to the special electronic structure of doped poly(β -pinene) confined in a sub-nanometer domain.

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