

Abstract Submitted
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Light-induced dispersion and its application in slow and fast light propagation QIGUANG YANG, JAETAEE SEO, Department of Physics, Hampton University, Hampton, VA 23668, WEI GONG, State Key Laboratory of Information Engineering in Surveying, Mapping and Remote Sensing, Wuhan University, Wuhan 430070, China, SEONGMIN MA, Department of Physics, Hampton University, Hampton, VA 23668, LINWOOD CREEKMORE, LITING HUANG, BAGHER TABIBI, Department of Physics, Hampton University, Hampton, VA 23668, SUNG-SOO JUNG, JINHA HEO, WANJUNG KIM, WANSOO YUN, DONGHWA HA, Korea Research Institute of Standards and Science, Daejeon, 305-600. South Korea, MIN NAMKUNG, Astrochemistry Branch, NASA Goddard Space Flight Center, Greenbelt, MD, 20771, U.S.A — The slow and fast light propagation of a Gaussian pulse in Kerr like nonlinear optical materials have been investigated. We found that both the slow and fast light propagation was caused by the slow finite response of the nonlinear materials. Even far away from resonance, both normal and abnormal dispersions may be induced by a strong CW pump or by the pulse itself through two-wave mixing processes in the materials. Both the light-induced group velocity dispersion (GVD) and third-order dispersion (TOD), which leads to pulse distortion, have been studied.

Qiguang Yang
Department of Physics, Hampton University, Hampton, VA 23668

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