

1032-78-168

**Ildar R Gabitov\*** (gabitov@math.arizona.edu), 617 N. Santa Rita, Tucson, AZ 85721, **Gregor Kovacic**, 110 8th St., Troy, NY 12180, and **Kathryn Rasmussen**, 110 8th St., Troy, NY 12180.

*Pulse color switching in negative index materials with three level atoms.*

This work represents a new effect in the interaction of optical field, host negative refractive index medium and three level atoms. It was previously shown that the phenomena of color switching occurs in a conventional optical medium embedded with three level lambda configuration atoms, if lower levels are properly populated. Light pulse entering such medium converts into a pulse of a different color after propagating certain distance. This newly formed pulse is shown to propagate in the backward direction only if the host medium has a negative index of refraction. (Received August 20, 2007)