

1027-78-236

Bridget R Kennedy*, 617 North Santa Rita Ave., Tucson, AZ 85721, and **Ildar Gabitov** and **Maxim Shkarayev**. *Loss Compensation in Nano-Structured Materials*.

Metamaterials have recently attracted a good deal of attention due to their potential for applications. The unusual properties of metamaterials are due to plasmonic oscillations embedded within the host medium. The high losses of plasmonic oscillations are a source of large energy dissipation as light interacts with these nano-structured materials. The dynamics of this nonlinear interaction between light and optical material can be described by an integral differential equation. We considered the mechanism of loss compensation, derived a modeling equation and studied its properties. (Received February 27, 2007)