

Field- and Carrier-Enabled Nonlinear Nanophotonics

Wenshan Cai^{1,2}

¹ School of Electrical & Computer Engineering, Georgia Institute of Technology, Atlanta, Georgia 30332-0250, United States

² School of Materials Science & Engineering, Georgia Institute of Technology, Atlanta, Georgia 30332-0245, United States
E-mail: wcai@gatech.edu

Abstract

The active manipulation of optical properties via external stimuli and the nonlinear wave-mixing of light with controlled means are among compelling research directions in nanophotonics. In this talk, we explore active and nonlinear plasmonic metamaterials by leveraging the field-induced disruption of the inversion symmetry for second-order optical processes, and exploiting the hot-carrier-induced perturbation in structured optical media for ultrafast all-optical modulation and nonlinear signal generation.