

23rd May, 2014 - 16:00

CUI seminar in bldg. 99, seminar room II (EG.078)

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Absorbers, filters, and local probes: the rapid development of terahertz metamaterials

Metamaterials have been a hot research topic since their introduction fifteen years ago. Much of this interest is due to two factors: parameter homogenization and charge localization. Starting with a review of metamaterial basics, I will show how these two factors lead to strong field enhancements, resonance sensitivity, spatial selectivity, and “designed” electric permittivity and magnetic permeability. In particular, I will demonstrate these principles using one of the successes of metamaterials, the sub-wavelength perfect absorber. We will then shift towards recent developments in the terahertz spectrum, with a focus on expanding the bandwidth of the metamaterial response and integration with high field terahertz sources for nonlinear metamaterial behavior.

