Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

Studying the Toroidal Dipole Moment within Metamaterials

AARON MOHAMMED, KHAGENDRA BHATTARI, JIANGFENG ZHOU

Univ of South Florida — Recently, a toroidal dipole moment was demonstrated by using metamaterials in the classical electrodynamic system, which behaves with a number of unusual electromagnetic properties. In this project, we are particularly interested in optimizing metamaterial design for enhancing the toroidal moment, which could be used in potential applications like low-threshold plasmonic lasing or biosensing. Through numerical simulations, a number of toroidal metamaterial designs, which are made up of planar split ring resonators (SRRs), are studied and the toroidal moment of each design is calculated.

1Supported by the NSF REU grant # DMR-1263066: REU Site in Applied Physics at USF.
2Graduate mentor
3Research professor

Aaron Mohammed
Univ of South Florida

Date submitted: 15 Nov 2013

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