

Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

Studying the Toroidal Dipole Moment within Metamaterials¹

AARON MOHAMMED, KHAGENDRA BHATTARI², JIANGFENG ZHOU³, 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

Electronic form version 1.4