

Department of Physics & Astronomy

Dr. Andrea Alu

Assistant Professor - University of Texas at Austin

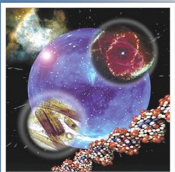
Friday, October 12, 2012

Time: 3:00 p.m. - 4:00 p.m.

BB 3.04.18

Plasmonics and Metamaterials to Control and Manipulate EM Waves at the Nanoscale

In this talk, I will discuss our recent progress and research activity in the field of metamaterials, optical antennas and plasmonics, covering a wide range of topics, from theoretical approaches to model the anomalous wave propagation and interaction with metamaterials, to various applications at microwave and optical frequencies, including enhanced nonlinearities, sensing, imaging and energy harvesting devices. We will discuss our most recent experimental results in metamaterial research, including the concept of broadband ‘plasmonic Brewster funneling of light’ and ‘epsilon-near-zero metamaterials’. We will also show our near-field and far-field experimental verification of 3-D radio-frequency cloaking, which represents the first experimental realization of a metamaterial cloak in 3-D for a free-standing object. Finally, we will discuss the concept and our recent experimental realization of ultrathin, broadband, planarized circular polarizers based on the concept of twisted metamaterials, realized using lithographically printed optical metasurfaces. Physical insights into these exotic phenomena will be discussed during the talk.



Department Contact Information

Dr. Marcelo Marucho • 210.458.7862 • Marcelo.Marucho@utsa.eduNakia Scott • 210.458.5698 • Nakia.Scott@utsa.edu<http://physics.utsa.edu/>