



**CREOL  
NanoScience  
Technology Center**

UNIVERSITY OF CENTRAL FLORIDA

## IEEE-APS DISTINGUISHED LECTURE PROGRAM & UCF/RAJ MITTRA DISTINGUISHED LECTURE PROGRAM

### **From Cloaking to One-Way Propagation: the Fascinating Physics and Engineering of Metamaterials**



#### **Andrea Alù, Ph.D.**

Department of Electrical and  
Computer Engineering  
The University of Texas  
at Austin

**Tuesday  
February 21, 2017**

**11:00AM – 12:00PM**

**CREOL  
Room 103**

*Light refreshments  
will be served.*

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Metamaterials are artificial materials with properties well beyond what offered by nature, providing unprecedented opportunities to tailor and enhance the interaction between waves with materials. In this talk, I discuss our recent research activity in electromagnetics, nano-optics, acoustics and mechanics, showing how suitably tailored meta-atoms and arrangements of them open exciting venues to manipulate and control waves in unprecedented ways. I will discuss our recent theoretical and experimental results, including metamaterials for scattering suppression, nanostructures and metasurfaces to control wave propagation and radiation, large nonreciprocity without magnetism, giant nonlinearities in properly tailored metamaterials, and parity-time symmetric meta-atoms and metasurfaces. Physical insights into these exotic phenomena, new devices based on these concepts, and their impact on technology will be discussed during the talk.

**Biography:** Andrea Alù is the Temple Foundation Endowed Professor #3 at the University of Texas at Austin. He received his Laurea (2001) and PhD (2007) from the University of Roma Tre, Italy, and, after a postdoc at the University of Pennsylvania, he joined the faculty of the University of Texas at Austin in 2009. His current research interests span over a broad range of areas, including metamaterials and plasmonics, electromagnetics, nano-optics, photonics and acoustics. Dr. Alù is a Fellow of IEEE, OSA, and APS, and has received several scientific awards, including the NSF Alan T. Waterman award (2015), the OSA Adolph Lomb Medal (2013), and the URSI Issac Koga Gold Medal (2011) .

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