



## Professor Christos Argyropoulos

University of Nebraska–Lincoln

### *Metamaterials: a new frontier in interdisciplinary material research*

In the past fifteen years, the field of metamaterials has significantly evolved and matured. It has been established at the forefront of material research in several diverse areas, such as electromagnetics, acoustics, and mechanics. The interdisciplinary nature of metamaterial research is the key behind its currently successful status. Metamaterials and their two-dimensional counterparts, called metasurfaces, are artificially constructed structures able to exhibit novel functionalities not available in materials provided by nature. In my talk, I will focus on the presentation of electromagnetic metamaterials that can tailor, enhance, control, and manipulate the electromagnetic radiation in unprecedented ways and at nanoscale regions. The large field enhancement in the vicinity of these systems due to localized or collective resonances ensures a significant boosting of different optical effects, ranging from optical nonlinearities to enhanced fluorescence and photoluminescence. In addition, the combination of metamaterials with the recently discovered 2D materials (graphene, MoS<sub>2</sub>, etc.) can lead to hybrid tunable planar devices with new intriguing functionalities.

**Professor Argyropoulos** has been an Assistant Professor in the Department of Electrical and Computer Engineering at University of Nebraska-Lincoln since September 2014, where he has established the Metamaterials and Integrated Nanophotonics laboratory. He received the Diploma of Electrical and Computer Engineering from the Aristotle University of Thessaloniki, Greece (2006). He holds a M.Sc. degree in Communication Engineering from the University of Manchester, UK (2007) and a Ph.D. degree in Electronic Engineering from the Antennas and Electromagnetics Group of the Queen Mary, University of London, UK (2011). After completion of his Ph.D. studies, he accepted a Postdoctoral Fellowship position at the University of Texas at Austin, USA. Next (2013), he worked for one year as a Postdoctoral Associate in the Center for Metamaterials and Integrated Plasmonics at Pratt School of Engineering, Duke University, USA. He has published over 170 technical papers in highly ranked journals and refereed conference proceedings, including 5 book chapters. His work has been published in top-ranked high-impact journals, such as *Nature*, and *Nature Photonics and Physical Review Letters*, and highlighted in the worldwide general press. He has been the recipient of several international awards and recognitions for his research studies, such as the 2017 ONR faculty research fellowship, Junior Researcher Award of the 2013 Raj Mittra Travel Grant, the international Travel Grant by Royal Academy of Engineering and twice the Marie Curie Actions Grant by the European School of Antennas. He also participates in the Optical Society of America Traveling Lecturer program and is an Associate Editor of *Optics Express*. He is a senior member of IEEE, full member of URSI Commission B, and member of IEEE Antennas and Propagation Society, IEEE Photonics Society, Optical Society of America, SPIE, American Physical Society and Technical Chamber of Greece.



Host:  
Professor Shireen  
Adenwalla

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**Wednesday, April 12, 4:30 p.m. | 136 Jorgensen Hall**