

FACULTY RESEARCH TALKS

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Zoom talk | Friday, Nov. 3, 2023 | Noon to 1 p.m.



PRESENTER 1:

**LUIS G.
ARBOLEDA**

Associate Professor
Civil, Environmental
and Construction
Engineering

Performance of Geostructures with Soil Structure Interaction

A recent trend in the construction of civil infrastructure is to maximize the use of underground space in congested urban environments. Underground construction-induced deformations can largely affect existing urban infrastructure. In this talk, Dr. Arboleda will outline his research accomplishments from multi-disciplinary federal and state funded research projects including NSF, FDOT and CALTRANS, oriented to develop innovative solutions in the field of geotechnical engineering and gain fundamental insight into the behavior of geostructures.

Dr. Arboleda's expertise lies in full-scale field performance and instrumentation of geostructures, including soil-structure interaction and numerical simulations of underground constructions. He has developed significant research contributions in the field of soil-structure interaction, analysis and design of supported excavations, geotechnical earthquake engineering, sinkholes, laboratory testing of soils, deep foundations and constitutive modeling of soils and rocks. Before joining UCF, Dr. Arboleda was at California State University. He earned his Ph.D. and M.S. from Northwestern and Purdue, and worked in consulting on the design, inspection and rehabilitation of long-span bridges.



PRESENTER 2:

PIOTR KULIK

Assistant Professor
Electrical and
Computer
Engineering

Novel Thin-Film Materials for Spintronic Devices and Quantum Sensors

The congestion of the electromagnetic spectrum caused by the ever-increasing use of devices has pushed silicon-based components to their limits. In this talk, Dr. Kulik will discuss his group's efforts to tackle spectrum congestion by utilizing magnetic thin-film materials for spinwave-based devices. Additionally, he will also discuss applications of magnetic materials for quantum sensors used in magnetic navigation and biomedical imaging.

Dr. Kulik's research combines the intricate physics and material science of magnetics to unlock new communication devices and quantum sensors. Prior to UCF, he was a technical team lead for Metamagnetics, a spin-out of Northeastern University that focused on developing magnetic-based RF filters. He was the lead principal investigator for several DARPA, USSOCOM and U.S. Army programs that revolved around the integration of magnetic thin films for mmWave applications. He holds a B.E. and M.E. in electrical engineering from Stevens Institute of Technology and a Ph.D. in electrical engineering from Northeastern University.