

# Colloquium Notice

## Alexey Slobozhanyuk

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### *Metamaterials-inspired technologies for improvement of Magnetic Resonance Imaging*

I will review briefly my recent activities in the field of microwave metamaterials. The main scientific part of my talk will be devoted to the application of metamaterials for Magnetic Resonance Imaging (MRI). In particular, I will show how to exploit efficiently the unique properties of an ultrathin metasurface resonator for improving the magnetic resonance imaging [1]. A metasurface is formed by an array of metallic wires placed inside the MRI scanner under the object. By means of subwavelength near-field manipulation with the metasurface, it is possible to enhance and redistribute the radiofrequency magnetic field in the region of interest, strongly improving scanner sensitivity, signal-to-noise ratio, and image resolution.

[1] A. P. Slobozhanyuk, A. N. Poddubny, A. J. E. Raaijmakers, C. A. T. van den Berg, A. V. Kozachenko, I. A. Dubrovina, I. V. Melchakova, Yu. S. Kivshar, P. A. Belov, "Enhancement of magnetic resonance imaging with metasurfaces", arXiv:1507.01411 (2015).

Wednesday  
**December 2, 2015**  
Starts at 12:15 PM  
Coffee at 12:00 PM  
Physics Conference Room, SB B326