

Physics Colloquium, University of South Florida

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Towards Bio-Imaging in the Space-Time Limit

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Recent progress in laser technology has pushed our abilities to investigate and control light-matter interactions beyond the conventional limitations of classical optics and electronics. Current state-of-the-art instruments allow ‘seeing’ phenomena at the ultrashort time (femtosecond) and length (nanometer) scales. Ultra-fast nano-optics is an emerging field of science which combines ultrafast lasers and nanotechnology. In this talk, an overview of ultra-fast nano-optics will be given, with several examples of applications to plasmonic nanostructures, 2D materials, single molecule bio-imaging and control using optical nano-antennas and shaped laser pulses.

Dmitri V. Voronine received his Ph. D. degree from Bowling Green State University. He is currently an Assistant Professor at the University of South Florida. His research interests include experimental and theoretical quantum biophotonics, multidimensional spectroscopy, ultrafast nano-optics and quantum control of light-matter interactions.