

SPIE Visiting Lecturer

Tuesday, September 26th, 2017

3:30 - 4:30 PM

WEB 2250

Organized by: SPIE Student Chapter University of Utah

“Plasmonic Nano-Optics: Modeling, Fabrication, and Characterization of plasmonic structures with sub-10 nm features”

Abstract: This talk summarizes recent work on plasmonic nanostructures with sub-10 nm gaps. Plasmons are charge oscillations which can be tuned and magnified with metallic nanostructures. These oscillations produce very large local electrical fields which enhance optical applications. This enables high sensitivity in sensor applications and greater efficiencies in light collection applications. Recent work has revealed that dual-width plasmonic slit structures with sub 10-nm gaps can improve enhancements over standard period slit structures. We have demonstrated the capabilities to fabricate sub 10-nm features with the nanomasking technique, with feature resolution smaller than conventional lithography limits, and the spectroscopic capabilities of the Plasmonic Nano-Optics lab at the University of Arkansas will be highlighted. Finally, recent plasmonic nanogap work in collaboration with researchers at the NRL will be discussed including nanosphere metasurfaces.



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Biography

Joseph B. Herzog is an assistant professor in the Department of Physics at the University of Arkansas. He received his BS degree from Louisiana State University and his MS degree and PhD from the University of Notre Dame in Electrical Engineering with advisors who had PhDs in physics. He was a postdoctoral research associate at Rice University in the Department of Physics & Astronomy under Douglas Natelson before joining the University of Arkansas. In the summer of 2017 he was a Fellow at the U.S. Naval Research Laboratory (NRL) in Washington, DC as part of the in the Office of Naval Research Summer Faculty Research Program. At the NRL he worked in the Center for Biomolecular Science and Engineering, which is a division of the Materials Directorate at the NRL. His research focuses on nano-optics, including plasmonics and photonic crystals.

**** The public is invited ****