

Spring
2016

Mathematical Sciences
Colloquium/RTG Seminar

“Computational Nanophotonics: Designing Spaces for Light”

Computational nanophotonics is one of the central tools of the science of light and photonic device engineering. It plays a crucial role in enabling optical technologies ranging from bio-sensing to quantum information processing. Up to the present, a plethora of various techniques and commercial software founded on conventional computational electromagnetics methods have been developed. After a brief review of previous work based on the innovative methods of transformation optics, I will present a new class of elliptic omnidirectional concentrators focusing light on a disk, a thin strip, or a rod. This study expands the theory of a circular omnidirectional concentrator—an ‘optical black hole’—previously developed by our team, and then experimentally demonstrated at the microwave, at optical spectral bands, and in acoustics. Our ray-tracing and full-wave simulations of new elliptic designs show flawless focusing and absorbing performance at complete acceptance angles.

Speaker: Alexander Kildishev

(Purdue University)

Monday, April 25, 2016

Time: 4:00 – 5:00 PM

Location: AE214

Host: Gregor Kovacic



