

Photonics

The role of gain-loss distribution in topological laser arrays**Stefan C. Badescu**Senior Research Physicist
(Sensors Directorate, AFRL)**Date: Friday, March 24, 2023****Time: 10:30am – 12:00pm****In-person: EEB 248**

Abstract: Motivated by earlier demonstrations of III-V topological lasers, I will present insights from modeling of ring arrays with engineered distributions of gain and loss. In addition, I will discuss the influence of Corbino geometrical parameters on the bulk density of states and on the properties of topological states, including the interplay between disorder, quality factors, and gain contrast. In the second part I will present progress with fabrication of device structures as part of a collaboration between Air Force Research Laboratory and the Ohio State University.



Biography: Stefan C. Badescu received his PhD in theoretical condensed matter physics in 2002 from Brown University, with work in quantum diffusion and in computational material science. From 2002 he was a National Research Council fellow at Naval Research Laboratory, with work in quantum computing. From 2005 he was a research faculty with University of Maryland at College Park with work on spin qubits and on carbon materials. He joined the Air Force in 2011 with computational work on wide bandgap materials for electronics and on III-V semiconductors. More recently he led a Topological Photonics subproject on ‘Topologically Enabled Devices’.

Hosted by: Mercedeh Khajavikhan; Michelle Povinelli, Constantine Sideris; Hossein Hashemi; Wade Hsu; Mengjie Yu; Wei Wu; Tony Levi; Alan E. Willner; Andrea Martin Armani