

The University of Texas at San Antonio

UTSA Physics and Astronomy

Topological photonics; A mathematical perspective

Friday, September 19th, 2025 at 11:00 AM

Dr. Alejandro Aceves



In the field of light matter interactions, current technologies allow the design of optical media (photonic lattices, photonic crystals, metamaterials) so that novel states of light are created. As such, topological photonics refers to features of such states of light that are characterized by a topological (quantized) property, leading to for example robust propagation properties. This talk will introduce the audience to the field as well as highlight current developments.

BIO: He earned his MS at the California Institute of Technology in 1983 and his PhD in Applied Mathematics, University of Arizona in 1988. Between 1989 and 2008, he moved through the ranks from Assistant to Full Professor of Mathematics at the University of New Mexico. In 2008 he joined SMU as Professor and was Department Chair of Mathematics (2016-2021) . He has had visiting positions, most recently Universita Sapienza Italy, University of Limoges, France, University of Erlangen and the Max Planck Institute in Germany and Columbia University. He has been a visiting scientist at the Los Alamos National Laboratory and an Air Force Laboratory faculty fellow. His main research area has been in modeling in Nonlinear Optics and Photonics and has worked on climate research. His research has been funded by the US National Science Foundation, Department of Energy and Department of Defense. He has mentored numerous PhD students and postdoctoral fellows. In 2016, he was elected Fellow of Optica (formerly the Optical Society of America) and in 2021, he was elected Fellow of the Society for Industrial and Applied Mathematics (SIAM). He has served SIAM in many forms and is the current SIAM Vice President for Science Policy.

Faculty Host: Dr. Jose Morales

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Venue: SEB 3.146