

SEMINAR: Synthetic frequency dimensions: from topological physics to optical computation

SHANHUI FAN

June 09, 2023

12:00 to 13:00

Blue Lecture Room & Online (Zoom)

Abstract:?

The concept of synthetic dimensions points to new avenues for manipulating light. Here we review our work in forming synthetic frequency dimensions in dynamically modulated ring resonator structures, and in using such structures for explorations of topological physics and optical computation.

Bio:

Shanhui Fan is the Joseph and Hon Mai Goodman Professor in the School of Engineering, a Professor of Electrical Engineering, a Professor of Applied Physics (by courtesy), and a Senior Fellow of the Precourt Institute for Energy, at the Stanford University. He received his Ph. D in 1997 in theoretical condensed matter physics from the Massachusetts Institute of Technology (MIT). His research interests are in fundamental studies of solid state and photonic structures and devices, especially photonic crystals, plasmonics, and meta-materials, and applications of these structures in energy and information technology applications. He has published over 600 refereed journal articles, has given over 400 plenary/keynote/invited talks, and holds over 70 US patents. He is a co-founder of two companies aiming to commercialize high-speed engineering computations and radiative cooling technology respectively. Prof Fan received a National Science Foundation Career Award (2002), a David and Lucile Packard Fellowship in Science and Engineering (2003), the U. S. National Academy of Sciences W. O. Baker Award for Initiatives in Research (2007), the Adolph Lomb Medal from the Optical Society of America (2007), a Vannevar Bush Faculty Fellowship from the U. S. Department of Defense (2017), a Simons Investigator in Physics (2021), and the R. W. Wood Prize from Optics (2022). He is a Web of Science Highly Cited Researcher in Physics since 2015, and a Fellow of the IEEE, the American Physical Society, the Optical Society of America, and the SPIE.

Hosted by: Georgia Papadakis