

Compatible Topological Electromagnetic Waveguides

Fei Gao

*State Key Laboratory of Modern Optical Instrumentation, and College of Information Science and Electronic Engineering,
Zhejiang University, Hangzhou 310027, China.
gaofeizju@zju.edu.cn*

Haoran Xue, Zhaoju Yang, Baile Zhang

*Division of Physics and Applied Physics, School of Physical and Mathematical Sciences, Nanyang Technological University,
Singapore 637371, Singapore.*

Abstract—The edges of topological photonic crystals/metamaterials can support robust edge states being immune to structural disorders, thus those edges are usually termed as topological electromagnetic (EM) waveguides. Topological EM waveguides have recently attracted extensive interest, due to their promising applications in optic communication, quantum computation *et al.* Here I will introduce a polarization-multiplexing topological waveguide being compatible with conventional waveguides. The topological edge states exhibit >97% outcoupling efficiency into directional beams.

Keywords—*Topological waveguides; Photonic crystal; Compatibility*