
Photonic Axion Insulator

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In axion electrodynamics, axions interact with electromagnetic fields in a way that can modify Maxwell's equations, through the axion angle θ . While still not observed as elementary particles, axions can exist as quasiparticles in topological crystals, whose quantized axion field can induce half Chern numbers on the surfaces of a three-dimensional crystal. We will discuss how to construct an axion insulator in photonic crystals.

Short Bio:



Baile Zhang is a professor of physics in the School of Physical and Mathematical Sciences at Nanyang Technological University, Singapore. He received his Ph.D. in electrical engineering from the Massachusetts Institute of Technology (MIT) in 2009. After a two-year postdoc period in the Singapore-MIT Alliance for Research and Technology Centre, he joined Nanyang Technological University in 2011 as an assistant professor. He became an associate professor in 2017 and full professor in 2021. His research interests include waves in complex media, metamaterials, photonic and phononic crystals, and acoustics.