

Abstract Submitted
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Determination of Zak phase by reflection phase in 1D photonic crystals WENSHENG GAO, HKUST, MENG XIAO COLLABORATION, CHETING CHAN COLLABORATION, WINGYIM TAM TEAM — For a one-dimensional (1D) periodic system with inherent mirror symmetry, the value of the geometric “Zak” phase in a bulk band is related to the sign of reflection phase for wavelengths inside the bandgaps sandwiching the bulk band. We designed an interference setup which allows us to measure the reflection phase of 1D phonic crystal fabricated for the optical range, and this in turn enabled us to determine the Zak phases of the bands. We then found interface states whose existence can be traced to the topological properties of the bandgaps and the geometric phases of the bulk bands. (accepted by optics letters)

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