Topological photonic crystal with ideal Weyl points LUYANG
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inghua University — Weyl points in three-dimensional photonic crystals behave
as monopoles of Berry flux in momentum space. Here, based on symmetry analysis,
we show that a minimal number of symmetry-related Weyl points can be realized in
time-reversal invariant photonic crystals. We propose to realize these "ideal" Weyl
points in modified double-gyroid photonic crystals, which is confirmed by our first-
principle photonic band-structure calculations. Photonic crystals with ideal Weyl
points are qualitatively advantageous in applications such as angular and frequency
selectivity, broadband invisibility cloaking, and broadband 3D-imaging.

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