

3D Photonic Topological Insulators

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Abstract— The history of photonic crystals, also known as photonic bandgap materials, began with the quest for a three-dimensional (3D) photonic band gap, a concept developed through multiple interactions between experiment and theory. The creation of a topological photonic band gap is the crucial step towards achieving a “photonic topological insulator”. However, the task of realizing a fully 3D photonic band gap with topological properties remains highly challenging. In this discussion, we will explore such 3D topological photonic band gaps and introduce their practical implementations.

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