

Diffraction-free image transmission in kagome photonic lattices

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We study the propagation of non-diffracting images in kagome photonic lattices. In a weak-coupling regime (discrete approach), the linear spectrum is composed by only three bands, including a completely degenerated and flat one. The states forming this special band are well localized in space and constitute building blocks for this lattice. By linearly combining these non-diffractive fundamental modes, different shapes can be composed and, therefore, a given image will propagate without distortion. As an example, we compare the linear propagation of a particular image for kagome and rectangular lattices. At the end, we test our concept by performing numerical simulations in a continuous kagome potential. © 2014 IOP Publishing Ltd.