

# Stable structures with high topological charge in nonlinear photonic quasicrystals

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Stable vortices with topological charge of 3 and 4 are examined numerically and analytically in photonic quasicrystals created by interference of 5 as well as 8 beams, in the cases of cubic as well as saturable nonlinearities. These structures are experimentally realizable, including a prototypical example of a stable charge 4 vortex. Direct numerical simulations corroborate the analytical and numerical linear stability analysis predictions.

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