

Abstract Submitted
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Self-organization of atoms coupled to a chiral reservoir ZACHARY ELDREDGE, CHRISTOPHER JARZYNSKI, Univ of Maryland-College Park, DARRICK CHANG, ICFO - The Institute of Photonic Sciences, ALEXEY GORSHKOV, Univ of Maryland-College Park — Tightly confined modes of light, as in optical nanofibers or photonics crystal waveguides, can lead to large optical coupling in atomic systems, which mediates long-range interactions between atoms. These one-dimensional systems can naturally possess couplings which are asymmetric between modes in different directions. In this poster, we examine the self-organizing behavior of atoms in one dimension coupled to a chiral reservoir. We determine the behavior of the self-organized solution to the equations of motion in different parameter regimes, relative to both the detuning of the pump laser and the degree of reservoir chirality. In addition to the spatial configuration of self-organized atoms, we calculate possible experimental signatures.

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