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Photon transport in chiral and bidirectional disordered waveguide QED architectures IMRAN M. MIRZA, JOHN C. SCHOTLAND, Univ of Michigan - Ann Arbor — Chiral quantum optics [Nature, 541, 473-480 (2017)] has emerged as a fascinating area to study novel types of light-matter interaction in nanophotonic setups. One such architecture (in which emitters can be strongly coupled to nanophotonic waveguides) is the waveguide QED. Till date, most of the work on photon transport in multi-qubit 1D waveguide QED has focused on periodically placed atomic arrays with symmetric waveguide couplings (the same coupling of emitters to left and right waveguide modes). Thanks to the present advancement in chiral quantum optics, in this talk I'll relax the symmetric coupling condition and discuss the photon transport in chiral and small back reflecting waveguides. Additionally, by considering the disorder in the atomic positions and transition frequencies I'll focus on the formation of localized photonic states under varying degrees of disorder [Phys. Rev. A 96, 053804 (2017)].

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