



Seminar/Talk

Photon-photon interactions in a waveguide with an array of atoms

Alexander N. Poddubny

Ioffe Institute, St. Petersburg

Host: Johannes Fink / Elena Redchenko

We study theoretically propagation of a photon pair in a one-dimensional waveguide with an embedded array of closely-spaced two-level atoms. We predict, that atom-mediated interaction between the two photons enables an unexpectedly rich variety of two-quantum states. This strikingly simple setup features interaction-induced localization [arXiv: 1911.04113, PRL (2020, in press)], quantum Hall phase with Landau levels, interaction-driven topological edge states and Hofstadter-like butterfly as well as signatures of quantum chaos. Our findings enrich the understanding of many-body quantum matter and open new avenues to engineer entanglement by interactions.

Wednesday, March 4, 2020 02:00pm - 03:00pm

Foyer seminar room Ground floor / Office Bldg West (I21.EG.128)



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