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Fluorescence spectrum of thermally driven array of QED cavities
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HAKAN TURECI, Princeton University — Developments in cavity QED technology
allow us to engineer strong interactions between photons and atoms and therefore
create possibilities to use light-matter systems as quantum simulators of many-body
quantum systems. Quantum Phase Transition (QPT) of photons in arrays of cou-
pled cavities described by models of closed systems such as the Jaynes-Cummings-
Hubbard and the Rabi-Hubbard models (RHM) [1-8] have been studied extensively
during last few years [1-8]. Our aim is to describe more realistic situations in which
the system is open to an environment. We consider the RHM in which photons can
leak out of the cavities. Based on the generalized input-output formalism, we show
that measuring the fluorescence spectrum of the leaked photons gives us information
about the system and the nature of the QPT.

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