

Abstract Submitted
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Proposal for an quantum optomechanical straight-twin engine

KEYE ZHANG, East China Normal University, WEIPING ZHANG, Shanghai Jiao Tong University — We propose a scheme to realize a quantum polariton heat engine in a hybrid microwave-opto-mechanical system. The engine transfers the heat obtained from the effective temperature difference between the microwave and optical cavity fields to the work extracted through the radiation pressure force. In our design a pair of polariton modes works alternately in the quantum Otto cycle, similar to a classical twin-cylinder four-stroke engine. And the other polariton is quasi-dark to suppress the disturbance from the mechanical noise. Different from its classical counterpart, the works from the two polariton modes are correlated in quantum fluctuations.

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