

Fluctuation-induced propulsion forces from nonreciprocal media

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Under what conditions is it possible to extract mechanical work from the quantum and thermal fluctuations of the electromagnetic field? Arguments based on symmetry and thermodynamics may suggest the existence of a ratchetlike lateral Casimir force between two plates at different temperatures and with broken inversion symmetry. We find that this is not sufficient, and at least one plate must be made of nonreciprocal material. This setup operates as a heat engine by transforming heat radiation into mechanical force. The properties of such heat engine, especially as regards the distance between the plates, and the optimal operation speed, are analyzed.

Wednesday, January 19th, 2022 at 2:15 pm

Video conference at www.zoom.us

Meeting ID: 959 2774 3389

Passcode: 651129, [direct link](#)



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