

Abstract Submitted
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Topological energy transfer in an optomechanical system with an exceptional point¹ HAITAN XU, DAVID MASON, LUYAO JIANG, JACK HARRIS, Yale University — We have measured an exceptional point in a cryogenic cavity optomechanical system, and have studied its topological properties. An exceptional point is a topological defect in the spectrum of a pair of coupled oscillators at which the system's two complex eigenvalues coalesce. We monitored the evolution of two mechanical oscillators while using a laser to encircle the exceptional point, thereby realizing topological energy transfer between mechanical modes. Moreover, by reversing the encircling direction, we observe the breakdown of the adiabatic theorem and show that the energy transfer possesses a diode-like asymmetry.

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