Topological dynamics with highly non-degenerate modes[1] HAI-TAN XU, DAVID MASON, LUYAO JIANG, JACK HARRIS, Department of Physics, Yale University — Complex spectra of non-Hermitian systems may possess certain degenerate points called exceptional points, which give rise to nontrivial topological properties. Nonreciprocal topological dynamics has been experimentally demonstrated in an optomechanical system (Nature 537, 80 (2016)), where energy is transferred between two nearly degenerate mechanical modes by encircling an exceptional point. Here we use a novel approach to demonstrate non-reciprocal topological energy transfer between two highly non-degenerate modes. This approach can be applied in broad range of systems, and should greatly expand the forms of topological operation that can be accessed using exceptional points.

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