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Experimental Measurement of the Nonlinear Interaction between Counterpropagating Alfvén Waves in the LaPD[1] J.W.R. SCHROEDER, The University of Iowa, D.J. DRAKE, Valdosta State University, G.G. HOWES, F. SKIFF, C.A. KLETZING, The University of Iowa, T.A. CARTER, S. DORFMAN, D. AUERBACH, University of California, Los Angeles — Turbulence plays an important role in the transport of mass and energy in many space and astrophysical plasmas ranging from galaxy clusters to Earth's magnetosphere. One active topic of research is the application of idealized Alfvénic turbulence models to plasma conditions relevant to space and astrophysical plasmas. Alfvénic turbulence models based on incompressible magnetohydrodynamics (MHD) contain a nonlinear interaction that drives the cascade of energy to smaller scales. We describe experiments at the Large Plasma Device (LaPD) that focus on the interaction of an Alfvén wave traveling parallel to the mean magnetic field with a counterpropagating Alfvén wave. Theory predicts the nonlinear interaction of the two primary waves will produce a secondary daughter Alfvén wave. In this study, we present the first experimental identification of the daughter wave generated by nonlinear interactions between the primary Alfvén waves.

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