

Abstract Submitted  
for the MAR13 Meeting of  
The American Physical Society

**Observation of Asymmetric Transport in Structures with Active Nonlinearities** NICHOLAS BENDER, SAMUEL FACTOR, JOSH BODYFELT, HAMIDREZA RAMEZANI, FRED ELLIS, TSAMPIKOS KOTTOS, Wesleyan University — A mechanism for asymmetric transport based on the interplay between the fundamental symmetries of parity (P) and time (T) with nonlinearity is presented. We experimentally demonstrate and theoretically analyze the phenomenon using, as a reference system, a pair of coupled van der Pol oscillators, one with anharmonic gain and the other with the complementary time reversed anharmonic loss, connected to two transmission lines. An increase of the degree of the gain/loss strength or of the number of PT -symmetric nonlinear dimers in a chain, increases the non-reciprocity effect.

Nicholas Bender  
Wesleyan University

Date submitted: 08 Nov 2012

Electronic form version 1.4