

Abstract Submitted
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Analysis of Nonlinear Internal Wave Systems Driven From a Flexible Boundary TOM DOBRA, ANDREW LAWRIE, University of Bristol, STUART DALZIEL, University of Cambridge — We present experiments and analysis of internal wave systems generated from motion of a flexible boundary driven by an array of electrical actuators. These actuators are independently controllable using arbitrary displacement profiles, and here we choose to coordinate their motion to create boundary displacements with a prescribed spectrum of temporal frequency and spatial wavenumber. We present first the simple case of two steady periodic signals of different frequency emanating from the same spatial location, and demonstrate a novel decomposition technique we have recently developed that isolates wave beams from their surroundings. This new methodology enables us to quantify weak nonlinearities in their interaction that are spatially local and aperiodic. We then apply our methodology to the more complex case of convergent focussed wave-beams generated from a spatially distributed source.

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