

Abstract Submitted
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resonant excitation of modes and triadic resonance in a precessing cube KE WU, BRUNO WELFERT, JUAN LOPEZ, Arizona State University — The flow response of a rotating fluid-filled cube under precessional forcing is investigated numerically. The simulations are conducted over a wide range of forcing frequencies at various background rotation rates and a fixed precession angle of one degree. The periodic response is comprised of two main components: resonant excitation of the inviscid inertial eigenmodes of the cube, and inertial wave beams. The resonantly excited modes preserve the same spatio-temporal symmetries as the precessional forcing. Moreover, a symmetry-breaking response is also observed, which is due to triadic resonance, and the modes involved are identified.

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