

Abstract Submitted  
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**Resonant excitation of Rayleigh waves in a narrow fluid channel clad between two metal plates**<sup>1</sup> NAGARAJ NAGARAJ, ARKADII KROKHIN, Center for Nonlinear Science, Univeristy of North Texas, JOSÉ SÁNCHEZ-DEHESA, VICTOR M. GARCIA-CHOCANO, Wave Phenomena Group, Universitat Politècnica de València, Spain — We study extraordinary absorption of acoustic energy due to resonant excitation of Rayleigh waves in a narrow water channel clad between two unidentical metal plates with Brass plate on one side of the channel and Aluminium plate on the other. The extraordinary absorption is observed at discrete resonant frequencies. From the elastic properties of the metal plates we derive a dispersion equation for coupled Rayleigh waves. Two different types of resonances, corresponding to different polarizations of the coupled waves, are studied for different channel widths and are experimentally confirmed. We also present the experimental confirmation of coupling through measurements of change in transmission minima with channel aperture. Experimental, theoretical, and numerical results are in a good agreement.

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