

Abstract Submitted  
for the MAR15 Meeting of  
The American Physical Society

**Anomalous scattering and redirection of sound in narrow liquid channels** ANDRII BOZHKO, ARKADII KROKHIN, University of North Texas, VICTOR M. GARCÍA-CHOCANO, JOSÉ SÁNCHEZ-DEHESA, Universidad Politècnica de València — Propagation of sonic waves through a finite-length channel clad between two identical liquid-immersed metal plates with accounting for excitation of coupled surface Rayleigh waves propagating near metal-liquid interfaces is studied. The transmission coefficient is calculated for the wide range of frequencies of the incident sound wave,  $f = 0.2 \div 1.4$  MHz. At discrete frequencies the transmission and reflection is anomalously suppressed that is shown to be accompanied by unusual redirection of sound from the liquid into metal at the edges of the channel. Proposed theory is in excellent agreement with experimental data obtained for water channels formed by Al and Cu plates.

Andrii Bozhko  
University of North Texas

Date submitted: 12 Nov 2014

Electronic form version 1.4