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Determination of internal wave power from synthetic schlieren data FRANK M. LEE, MICHAEL ALLSHOUSE, P.J. MORRISON, HARRY L. SWINNEY, Univ of Texas, Austin — Internal waves are generated in the ocean by tidal flow over bottom topography, and they are of considerable interest because of their significant contribution to the energy budget of the ocean. One way of measuring internal waves produced in the laboratory setting is by a technique called "synthetic schlieren," whereby the perturbation density field is obtained from the change in index of refraction in the fluid. However, the usual computation of power requires the velocity and pressure, or under certain assumptions, the stream function [Lee et al., "Experimental determination of radiated internal wave power without pressure field data," Phys. Fluids 26, 046606, (2014)]. We present a method for computing the radiated internal wave power that uses only the perturbation density field, assuming the flow is sufficiently 2-dimensional, and we demonstrate the method using data from simulations and experiments.

Frank M. Lee
Univ of Texas, Austin

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