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Dominant Resonance in Parametric Subharmonic Instability of Internal Waves REZA ALAM, YONG LIANG, LOUIS-ALEXANDRE COUSTON, QIUCHEN GUO, UC Berkeley — Parametric Subharmonic Instability (PSI) is one of the most important mechanisms that transfer energy from tidally-generated long internal waves to short steep waves. Breaking of short waves results in diapycnal mixing through which oceanic abyssal stratification is maintained. It has long been believed that PSI is strongest between a primary internal wave and perturbative waves of half the frequency of the primary wave. Here, we show that this is not the case. Specifically, we show that neither the initial growth rate nor the maximum long-term amplification occur at the half frequency, and demonstrate that the dominant subharmonic waves have much longer wavelengths than previously thought.

Reza Alam
UC Berkeley

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