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Experimental study on wave turbulence interaction in wave tank

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Surface waves play an important role in the upper ocean mixing. Part of wave energy is transferred to ocean turbulence through wave breaking and wave-turbulence interaction. Lots of work have been done on the interaction of wave-turbulence. In this paper, we do experiment in wave tank to research the interaction effect between wave and turbulence. The homogenous and uniform turbulence was produced with stirring grid and the harmonic wave was generated by wave maker. With ADV, the water velocity was measured. we carry out three kinds of experiments: only mechanical wave, only vibrating grid turbulence, vibrating grid turbulence and mechanical wave. Though analyzing the velocity of water with EMD method, we got that wave will interact with turbulence obviously and transfer energy to turbulence increasing its strength, especially in wave trough.