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Interactions between capillary wave turbulence and hydrodynamics turbulence MICHAEL BERHANU, LEONARDO GORDILLO, TIMOTHEE JAMIN, ERIC FALCON, MSC Universite Paris Diderot, CNRS, UMR 7057 Paris — We report experiments on capillary wave turbulence at the air-water interface. The field of wave elevation is measured using Diffusing Light Photography method. When wave turbulence regime is reached, we observe power-law spectra of wave elevation, both in frequency and in wave number, whose exponents are found in agreement with the predictions of capillary wave turbulence theory, although some hypotheses are not fulfilled. By the means of a laser sheet, we complete our observations by measuring in the same conditions in a vertical plane, the space-time deformation of the free surface using a Radon transform and the corresponding velocity field using 2D PIV algorithms. We aim to characterize vorticity generation by the waves and interaction between wave turbulence and hydrodynamics turbulence. These phenomena could indeed increase strongly the effective dissipation of non-linear propagating waves.

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