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Hypergravity Wave Turbulence[1] ERIC FALCON, ANNETTE CAZAUBIEL, Universite de Paris, Univ Paris Diderot, MSC, UMR 7057 CNRS, F-75 013 Paris, France, SEBASTIEN MAWET, ALEXIS DARRAS, GALIEN GROSJEAN, GRASP, Dpt de Physique B5a, Universite de Liege, FNRS - B-4000 Liege, Belgium, JACK J.W.A VAN LOON, Gravity Simulation Laboratory, ESTEC, ESA, Noordwijk, The Netherlands, STEPHANE DORBOLO, GRASP, Dpt de Physique B5a, Universite de Liege, FNRS - B-4000 Liege, Belgium — Wave turbulence occurs in various domains of physics (plasma physics, elastic waves, or fluid mechanics) but is far to be completely understood, notably for ocean surface waves. By using a large-diameter centrifuge (LDC), we are able to tune the gravity field up to 20 times the Earth acceleration. This new technique then allows us to report the first observation of gravity wave turbulence on the surface of a fluid in hyper-gravity environment. This is also a unique solution to significantly expand the inertial range of gravity wave turbulence in the laboratory. Wave turbulence properties are then reported as function of the gravity level, and we show that the usual energy transfer by nonlinear wave interactions are modified by large-scale container modes.

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