1145-35-2770   **Foteini Tsitoura*** (`ftsitoura@gmail.com`), 196 N.Pleasant St., Amherst, MA 01002.
Observation of domain walls in Stokes waves on deep water.

Experiments of nonlinear phase domain walls in weakly nonlinear deep water surface gravity waves are presented. The domain walls presented are connecting homogeneous zones of weakly nonlinear plane Stokes waves of identical amplitude and wave vector but differences in phase. By exploiting symmetry transformations within the framework of the nonlinear Schrödinger equation we demonstrate the existence of exact analytical solutions representing such domain walls in the weakly nonlinear limit. The walls are in general oblique to the direction of the wave vector and stationary in moving reference frames. Experimental and numerical studies confirm and visualize the findings. (Received September 25, 2018)