

## **Spiral Waves in Water**

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Spiral waves are found in linear and weakly nonlinear irrotational water wave equations. These unsteady spiral waves evolve from suitable initial conditions; they are not induced by external forcing. In the linear case, a long-time asymptotic result is obtained via the method of stationary phase. The asymptotic approximation is found to be in good agreement with the exact solution and reveals hyperbolic spiral structure. Numerical simulations show that these spiral waves persist in the presence of weak nonlinearity. While spiral waves are frequently found in excitable media governed by reaction-diffusion systems, they comprise a new class of interesting two-space one-time dimensional phenomena in fundamental linear and nonlinear dispersive wave systems.