



## **The Peregrine Breather Solution in a water wave tank**

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Freak or rogue waves on the ocean seemingly appear from nowhere, cause severe damage to ships and offshore structures due to their large crest heights, and disappear at once. Since the Draupner wave measured on New Year's day 1995 finally confirmed the existence of freak waves, different models were developed to describe them. One deterministic model to investigate their occurrence is the nonlinear Schrödinger equation (NLS) describing the nonlinear evolution of wave train envelopes. Due to the modulation instability, also referred to as Benjamin-Feir instability, strong spatial localization of wave amplitude may arise and breather type solutions are hypothesized to form the dynamical back-bone of rogue waves. The Peregrine solution is a limiting case of the space periodic Akhmediev breather and of the time periodic Ma breather. This rational solution is therefore localized in both space and time. We present the experimental results of the Peregrine Soliton generated in a water wave tank and compare the obtained evolution to the exact analytical solution.