

Universal Peregrine soliton structure in nonlinear pulse compression in optical fiber.

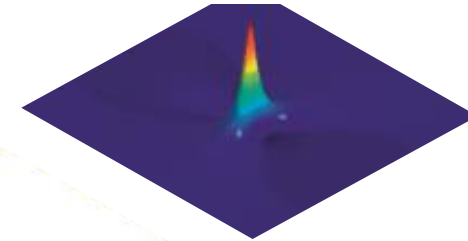
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Modulational instability of a plane wave in focusing Nonlinear Schrödinger equation (FNLSE)

- Kibler, B. *et al.*, Nat. Phys. 6, 790 (2010).
- Chabchoub et al., Phys. Rev. Lett. 106, 204502,(2011)



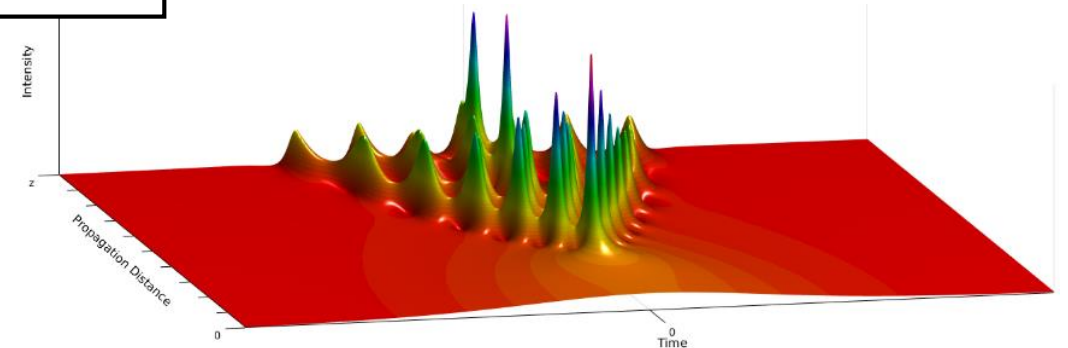
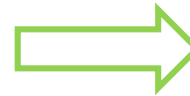
Peregrine soliton



$$i\epsilon \frac{\partial \Psi}{\partial z} + \frac{\epsilon^2}{2} \frac{\partial^2 \Psi}{\partial \tau^2} + |\Psi|^2 \Psi = 0$$

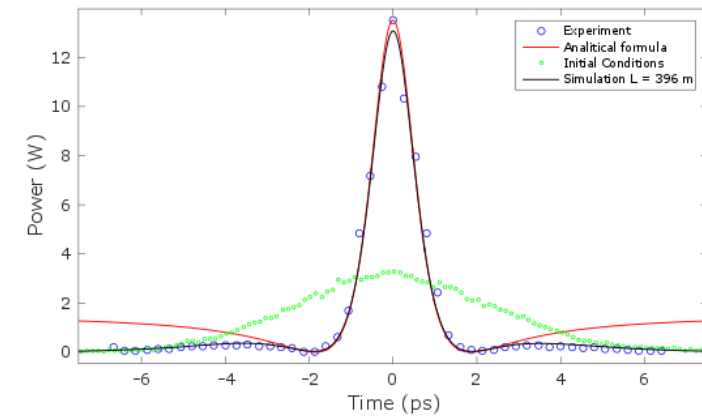
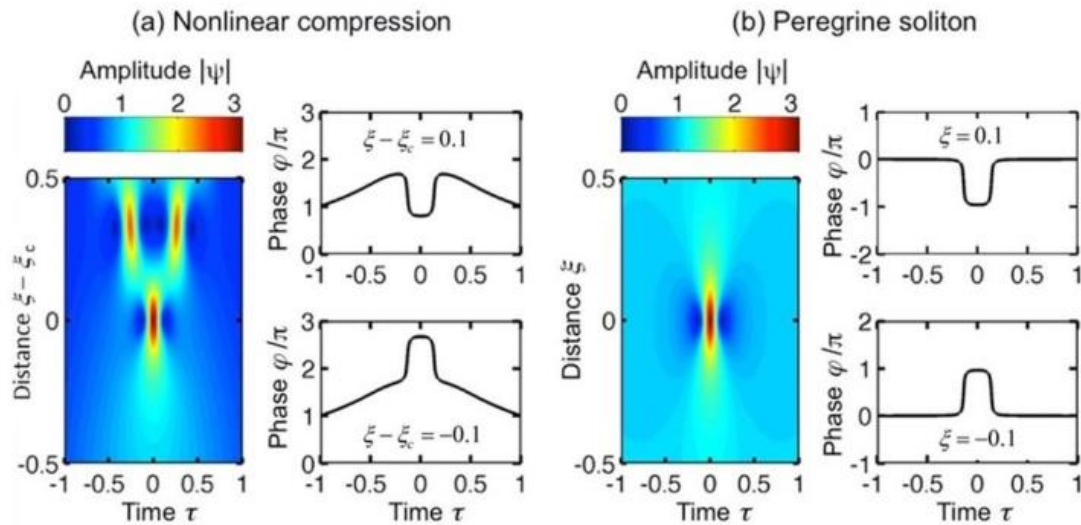
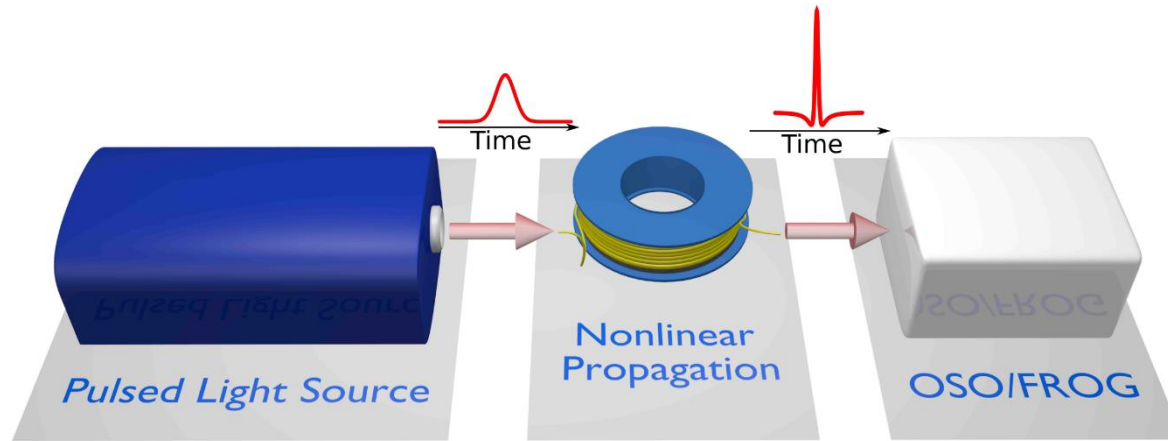
Regularization of gradient catastrophe in the semi-classical limit of FNLSE

- M. Bertola, A. Tovbis ,
Com. on Pure and App. Math. 66, 5, pp.678-752,(2013)



Objective: Experimental observation of this phenomenon

Optical sampling oscilloscope(OSO)/ Frequency-Resolved Optical Gating(FROG) measurements



The corresponding article is pre-published <https://arxiv.org/abs/1701.08527>