

Single- and Multi-Pulses in the Two-Mode Forced Lugiato-Lefever Equation

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Abstract

In this talk we consider the two-mode forced Lugiato-Lefever variant

$$iu_t = -du_{xx} + i\omega u_x + (\zeta - i)u - |u|^2 u + i(f_0 + f_1 e^{ikx}) \quad (\text{LLE})$$

on the line \mathbb{R} . We establish the existence of far-from constant stationary single-pulse solutions, that exhibit small periodic behavior in the asymptotic regions $x \rightarrow \pm\infty$, and we study their spectral and dynamical stability. In addition, we present a result on the existence of stable multi-pulse solutions of (LLE), which are constructed from superpositions of stable singlepulses. This is joint work with Björn de Rijk.