

Rogue Waves for a Generalized Semilinear Wave Equation

Julia Henninger

Karlsruhe Institute of Technology, Karlsruhe, Germany
julia.henninger@kit.edu

Wolfgang Reichel

Karlsruhe Institute of Technology, Karlsruhe, Germany
wolfgang.reichel@kit.edu

We study the generalized semilinear wave equation

$$V(x)u_{tt} + d(t)M(x, \partial_x)u = |u|^{p-1}u \text{ for } (x, t) \in \mathbb{R}^N \times \mathbb{R}$$

where M is elliptic and d is a positive periodic step potential. Our goal is to construct solutions which are localized in space and time (rogue waves) by means of variational methods. We present our approach with its main difficulties and discuss suitable examples for M and d . This is joint work with Wolfgang Reichel (KIT).