

Seminar of the Work Group  
Nonlinear Partial Differential Equations  
WS 23/24

**November 28th, 2023, 11:30 - 13:00**  
**Seminar room: SR 3.061**

## Rogue Waves for a Generalized Semilinear Wave Equation

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### Abstract

We study the generalized semilinear wave equation

$$\partial_t^2 u + d(t)M(x, \partial_x)u - |u|^{p-1}u = 0 \quad \text{for } (x, t) \in \mathbb{R}^N \times \mathbb{R}$$

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).