

Seminar of the Work Group
Nonlinear Partial Differential Equations
WS 21/22

Speaker: Julia Henninger
November 23rd, 2021, 14:00 - 15:30
Seminar room: 3.068

Time-periodic solutions of a semilinear wave equation by a direct and a dual approach

KIT

Abstract

We study the semilinear wave equation

$$V(x)u_{tt} - u_{xx} = f(x, u) \quad \text{on } (0, 2l) \times \mathbb{R} \quad (1)$$

with Dirichlet boundary conditions and look for time-periodic solutions by using variational methods. The main idea is to consider a Fourier expansion ansatz and to analyze the spectrum of the wave operator in dependence of V . With the help of variational methods one can find weak solutions as critical points of appropriate functionals.

This talk is based on my master's thesis.