

Seminar of the Work Group
Nonlinear Partial Differential Equations
WS 2020/21

Speaker: Sebastian Ohrem
December 18, 2020, 14:00 - 15:30,
Zoom Link: [//kit-lecture.zoom.us/j/7143665630](https://kit-lecture.zoom.us/j/7143665630)
Meeting ID: 714 366 5630

Investigating a linear equation involving the fractional Laplacian

Abstract

In this talk we investigate the equation

$$[(-\Delta)^s + 1 - \omega^2 \mu \varepsilon] u = 0,$$

on the whole space \mathbb{R}^d , with ε being a bounded function attaining a positive value at ∞ . In the first part, we study dependence of the solution on parameters s, μ, ε , obtaining both local and global regularity results by means of an implicit function theorem and degree theory, respectively. In the second part, we focus on least-frequency solutions and discuss existence as well as regularity, using a related energy functional.

This talk is based on my master's thesis.