Oberseminar Nichtlineare Differentialgleichungen

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Rigorous Asymptotic Analysis and Numerics for 2D Maxwell's Equations with Interface

1. Juli 2022 - 10:00 - WebEx Meeting

Abstract: We consider Maxwell's Equations in 2D for two Kerr isotropic media with a planar interface. For space-dependent material functions we formally construct an approximative solution with the method of amplitude equations where the envelope is given by a nonlinear Schrödinger equation. By extending an existing well-posedness result with the help of a bootstrapping argument we show the exact approximation properties on a large time-scale analytically.

We also present numerical methods to compute the asymptotic solution and suitable initial values close to the ansatz such that solutions of Maxwell's equations exist.

This talk is based on joint work with Christina Lienstromberg (Stuttgart) and Stefan Schiffer (Bonn).

Gemeinsame Veranstaltungsreihe des Lehrstuhls Analysis und Modellierung und der Abteilung für Differentialgleichungen

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