Bernoullis Tafelrunde

Math Students and PhDs Seminar

Thursday, 19.03.2026, 12:15-13:00

Seminarraum 05.001, Spiegelgasse 5

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Non-Uniqueness of Self-Similar Solutions for the Supercritical Complex Ginzburg-Landau Equation

Abstract

The Complex Ginzburg-Landau (CGL) equation is a fundamental nonlinear partial differential equation (PDE) frequently used to model a wide variety of evolution phenomena in a wide range of physical systems. It is also being studied as a model equation for other different nonlinear PDEs, like the incompressible Navier-Stokes equation in fluid dynamics.

In this talk, we will present a numerical investigation into the existence, stability, and uniqueness of self-similar solutions to the CGL equation in the supercritical regime. The primary focus is on forward-in-time solutions in self-similar coordinates whose initial condition correspond to the blow-up profiles of backward-in-time self-similar solutions. The investigation seeks to determine whether the evolution of this forward profile from the singularity is unique.

Scan before 18.03.2026 at 16:00 to register for lunch