Rigorous Numerics for Partial Differential Equations by using Conley Index Theory

Ulrich Miller Institut fr Mathematik RWTH Aachen 52062 Aachen Germany

Abstract

We present a method for a rigorous computer-assisted proof of the existence of solutions for Partial Differential Equations. As an example, we apply it to the Cahn-Hilliard equation. The method uses Conley index theory; therefore we start with a brief introduction of this theory.