

# Existence and Uniqueness for the Weak Solutions of the Ginzburg-Landau Equations

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**Abstract:** In this paper we study a gauge-invariant Ginzburg-Landau model which describes the phenomenon of the superconductivity, characterizing the state of the material by means of observable variables. We give a definition of weak solutions for the steady and the time-dependent Ginzburg-Landau equations and prove theorems of existence and uniqueness.

**Keywords:** *Superconductivity, Ginzburg-Landau equations.*

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