

2D-Numerical Analysis of Flux Penetration and Current Distribution in HTS under Time Varying Magnetic Field Using Finite Element Method

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In this paper, we used E-J constitutive law and H-formulation to calculate magnetic field profile, current density, and magnetization of high temperature superconductor (HTS) placed in time varying applied magnetic field. Finite element method (FEM)-based software, *Comsol Multiphysics 3.5*, was employed to simulate 2D-model of a superconducting thin strip. The numerical results based on Bean's and Kim's critical state models were compared with the Brandt's paper as well as experimentally observed magnetization curves. This method can be extended to 3D-HTS devices.

Keywords : HTS film, Finite Elements Method, 2D-modeling

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