

Title: On the variational characterization of a laminated core model in ferromagnetic materials

Abstract: For the accurate estimation of iron losses in higher frequency regimes the eddy currents in laminated steel sheets have to be included in the magnetic field solution. In a two-dimensional simulation this can be achieved by additionally solving a diffusion equation in the axial direction, which models the inhomogeneous flux density due to skin effects. We show in this work that the resulting magnetic material model has an energetic structure in the time-discrete case and propose efficient globally convergent solvers for the local material model and corresponding magnetic field problems