JOHANNES KEPLER UNIVERSITY LINZ

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Talk announcement

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Nonlinear Simulation of a PMSM

The simulation of electromagnetic fields is crucial for analyzing and improving the performance of electric motors. In this Master's thesis update, we present the development of a finite element simulation for a two-dimensional cross-section of a permanent magnet synchronous motor (PMSM) using harmonic mortaring as a coupling method. We will go over the basics of harmonic mortaring and the changes we have to make when going from a linear to a nonlinear model. Finally, we demonstrate an implementation of this approach using the FEM software Netgen/NGSolve, including visualizations of the magnetic flux density, magnetic vector potential and torque.