Talk announcement

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The Scalar Potential Approach In Nonlinear Magnetostatics

   This talk covers the analysis of the scalar potential approach in the nonlinear magnetostatic setting. First, the physical model is presented and the potential approach is motivated. In this master thesis, a very general form of the nonlinear constitutive equation is considered, which simplifies the analysis dramatically. Next, we derive the variational problem and state equivalent minimization and Lagrange multiplier problems. Existence & uniqueness is shown and a stability esmate is given. For the discretization standard courant elements are considered and the usage of numerical integration is justified with a nonlinear variation of the Strang lemma. Finally, first numerical results of an iron circuit in 2D are presented.