

AN HDG METHOD FOR THE EDDY CURRENT PROBLEM

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ABSTRACT. The aim of this talk is to present a new hybridizable discontinuous Galerkin (HDG) method for the numerical solution of the eddy current problem, considering non trivial domains and heterogeneous media, containing insulate and conductor material. For there domains it is necessary to impose the divergence-free condition explicitly in the insulator, which is achieved by a Lagrange multiplier in that material. The HDG method for this problem consists on a scheme whose unknowns are the approximations of the tangential trace of the vector field and the Lagrange multiplier trace, which represents a reduction in the number of unknowns with respect to classical discontinuous Galerkin methods. For this scheme, we conduct a consistency and conservativity analysis as well as an existence and uniqueness analysis of its solution.

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