Domain decomposition methods for eddy current problems

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Abstract

The usual setting for an eddy current problem distinguish between a conductive region and a non conductive air region. For this reason is natural to use domain decomposition methods for the numerical approximation of the solution. The aim of this talk is to review some two-domains formulations of the eddy current model in electromagnetism and their finite elements approximation. Particular attention will be pay to the case of non simply connected conductors. I analyze formulations that consider as main unknown the same field in both domains and also hybrid formulation that use different unknowns in the conductor and the insulator.

Key words: domain decomposition methods, eddy current problems, finite elements.

Mathematics subject classifications (2010): 65N30, 65N55.

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