

$$\Pi = \frac{1}{2} \sum \{u\}^T \cdot [K] \cdot \{u\} - \{u\}^T \cdot \{F\}$$



Scalable eddy-current solver for ANSYS

A new preconditioner for electromagnetic eddy-current problems has recently been discovered (Hiptmair & Xu 2008) and tested (Kolev & Vassilevski, 2008). In combination with a parallel algebraic multi-grid (AMG) solver, it will allow for scalable simulations for eddy currents, with applications for electrical generators, motors, and transformers.

The goal of the thesis is to implement the preconditioner for the commercial software package ANSYS and to demonstrate its scalability on a number of interesting problems. The work will involve direct interaction with the developers at ANSYS and CADFEM. A visit to ANSYS in the USA and/or a conference will be sponsored by ANSYS.

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