Yongxiang Liu

A Dirichlet-Neumann Method for Plate Problem

Rue du Molson 4
1202 Genve
Yongxiang.Liu@unige.ch
Martin Gander

We study a Dirichlet-Neumann method for the plate bending problem. This is a forth order problem and thus requires four interface conditions to hold between subdomains, which is quite different from the classical Laplace problem which requires only the continuity of the Dirichlet and Neumann traces at interfaces. We present a particular Dirichlet-Neumann iterative method for a specific choice of interface conditions and a suitably chosen relaxation matrix. We determine the optimal choice of the relaxation matrix, and prove that the associated convergence rate is then independent of the mesh size. We illustrate our analysis with numerical experiments.