

Harmonic Maps as Tools for Grid Improvement

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Parametric methods for the numerical solution of free boundary problems have the advantage that the dimension of the finite element algorithm coincides with the dimension of the free boundary. But these methods are such that the moving grid degenerates easily. Grid improvement can be achieved by conformal parametrization. This leads to the computation of harmonic maps from the surface into the sphere. We discuss discretization, convergence and application. This is joint work with U. CLARENZ (Duisburg).