Seminar über Fragen der Mechanik

zu folgendem Vortrag wird herzlich eingeladen

Montag, 15.06.2009, 17:00 Uhr, Egerlandstr. 5, Raum 0.044

A fictitious energy constraint for (node-based) shape optimization

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Classical shape optimization methods combine a geometry model (based on Bézier curves or surfaces, B-splines, or NURBS) with the FEM-model of a structure. The geometry model on the one hand provides the design variables and the FEM-model on the other hand is used for the computation of the state variables and sensitivities. The principal characteristic of the shape optimization method presented here, is that coordinates of boundary nodes can directly be chosen as design variables. Well-known problems of node-based methods with maintaining a smooth and regular boundary are eliminated by a special regularization technique: an artificial inequality constraint based on a fictitious elastic energy allows to control the shape change of the design and improves the solvability of the optimization problem.

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