

Numerical Solution Of Variational Inequalities By Adaptive Finite Elements

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Franz-Theo Suttmeier describes a general approach to a posteriori error estimation and adaptive mesh design for finite element models where the solution is subjected to inequality constraints. This is an extension to variational inequalities of the so-called Dual-Weighted-Residual method (DWR method) which is based on a variational formulation of the problem and uses global duality arguments for deriving weighted a posteriori error estimates with respect to arbitrary functionals of the error. In these estimates local residuals of the computed solution are multiplied by sensitivity factors which are obtained from a numerically computed dual solution. The resulting local error indicators are used in a feed-back process for generating economical meshes which are tailored according to the particular goal of the computation. This method is developed here for several model problems. Based on these examples, a general concept is proposed, which provides a systematic way of adaptive error control for problems stated in form of variational inequalities. EAN/ISBN : 9783834895462 Publisher(s): Vieweg+Teubner Discussed keywords: Finite-Elemente-Methode, Ungleichungen Format: ePub/PDF Author(s): Suttmeier, Franz-Theo

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