Finite Element Methods for the Displacement Obstacle Problem of Clamped Plates

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Abstract

The displacement obstacle problem of clamped plates is an example of a fourth order variational inequality whose numerical analysis is more subtle than that of second order variational inequalities. In this work we introduce a general framework for finite element methods for this problem. Error estimates are derived in the energy norm and the L_∞ norm. The performance of a quadratic C^0 interior penalty method is illustrated by numerical results.