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# FINITE ELEMENT NUMERICAL SOLUTION FOR PROBLEMS IN THE THEORY OF ELASTICITY

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## Abstract

*We present a finite element numerical solution for problems in the theory of elasticity using a Reissner functional (mixed finite element method). While searching for a stationary point on this functional we arrive at a saddle point problem, which is a block system of algebraic linear equations depending on displacement and strain vectors simultaneously. A modified symmetric successive over-relaxation method is one of the most efficient methods for solving this type of problems. We also used the algorithm we developed to solve similar problems that take friction into account*

## Keywords

*Contact problems in the theory of elasticity, Reissner functional, finite element method, over-relaxation method*

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