# BROYDEN'S METHOD FOR SOLVING NONLINEAR SYSTEMS

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When nonlinear parabolic differential equations are solved by Rothe's method the problem is discretized in time and particular elliptic problems are solved. To approximate the infinite dimension function spaces *Finite Element Method* is used and on every time level some nonlinear system of equations is solved. In this paper *Broyden's method* is successfully used for solving this system. *Broyden's method* is based on *Newton - like methods*. Convergence in the space $L_2$ of this method on one time level is proved. Convergence of Rothe's step functions to solution of the problem is proved too.