

## PROBABILISTIC APPROACH TO NUMERICAL SIMULATION OF FRACTURE

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### ABSTRACT

The natural heterogeneity of real materials structure influencing on distribution of material physicommechanical characteristics (PMC) is one of the factors determining character of destruction. The introduction of the given factor in the equations of mechanics of a deformable solid is possible at use probabilistic laws of distribution PMC on volume of a considered design.

There are problems where the fragmentation is mainly probabilistic process: for example, explosive destruction axisymmetric shells where character of blasting fragmentation are beforehand unknown. Determining influence of heterogeneity of material structure is shown as well in problems punching thin barrier, during so-called "petaling" barrier. In order that simulated process of a fragmentation reflected a real picture of behavior of the destroyed bodies, received in experiments, it is necessary to bring in casual distribution of initial deviations strength properties from rating value to PMC of a body (modeling of initial defective structures of a material).

We welcome contributions on modelling fracture of engineering and geotechnical materials by taking into account the heterogeneities of real materials and probabilistic approach to numerical simulation of fracture. We especially welcome the contributions on different reduction methods that are trying to connect different scales of material observations and produce new models capable of accounting for the uncertainties in the material response. A variety of continuum models and corresponding numerical aspects as well as current and future trends in computational damage, fracture and fragmentation mechanics will be discussed in the proposed mini-symposium.