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COMPUTATIONAL METHODS FOR STRENGTH ANALYSIS IN GEOMECHANICS UNDER STEP-BY-STEP LOADING

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ABSTRACT

The minisymposium will be devoted to development of mathematical models, numerical methods, algorithms, and software for engineering strength analysis of rocks and drilling equipment under step-by-step loading.

Topics to be addressed include:

- numerical modeling of thermodynamical processes that take place during oil and gas borehole drilling, building and use of underground structures;
- effective mechanical and thermophysical material properties of rocks with account for presence and origination of cracks;
- stability of boreholes and mines;
- models of damage accumulation, crack initiation and growth in rocks;
- geoacoustical methods for mineral exploration; verification and validation of software for the modeling of rock deformation processes, analytical solutions within the scope of solid body mechanics;

- industrial monitoring of boreholes, mines, and other underground structures;
- numerical methods and parallel computations for nonlinear problems of geomechanics.

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