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ESTIMATE OF INDUCED SEISMICITY PARAMETERS OF GEOMECHANICAL OBJECTS BASED ON MATHEMATICAL MODELING USING LABORATORY TEST DATA AND FIELD OBSERVATION

Summary:

Joint analysis of micro-displacements recorded by white light speckle-photography method on the surface of diametrically compressed disc-shaped rock sample and simulated elastic macro-stress field was carried out. The probably significant relationships between the damage in the different parts of a sample as well as the level of the external load were uncovered. In crucial respect, having a verified model of geomechanical object describing stress field evolution it affords base for estimation the damage rate of the object by monitoring of state of it single part.

The developed approach applied for analysis of the space-time correlation relationships between parameters of induced seismicity (number of seismic events, stochastic data) and the stress state variation (deterministic information) in course of mining of Tashtagol iron-ore deposit.

Keywords: rock mass, stress field, mining, induced seismicity, laboratory experiment, white light speckle photography, 3D geomechanical model, Tashtagol iron-ore deposit

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