

عنوان مقاله:

Constitutive Equations for the Elastic Behavior of Granular Soils with Thermodynamics Considerations

محل انتشار:

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خلاصه مقاله:

Formulations of four elastic models of granular soils belonging to two different families of the elasticity theory, hypoelasticity and hyperelasticity, are described. To investigate the impact of the elastic response on predictions of elasto-plastic models, the introduced elasticity models are implemented within an advanced elasto-plastic bounding surface constitutive model. Then, the elasto-plastic models with the same elements for the plastic part and different elasticity models are applied for simulation of undrained tests. The most favorable predictions are obtained from the model with anisotropic hypoelasticity, whereas predictions by the model with isotropic elasticity were found undesirable. Finally, predictions of the models employing hyperelasticity were slightly better than those of the isotropic hypoelastic model

کلمات کلیدی:

Hypoelasticity, Hyperelasticity, Gibbs free energy, Plasticity theory, Liquefaction

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