Experimental and Numerical Research of Stress-Strain State of Soils. ABSTRACT. Testing of un reinforced and reinforced residual soil was conducted using a computer controlled shear box apparatus with stress levels ranging from 0.01 to 1.0 MPa. The results were compared with those obtained from a finite element model. In general, the agreement between the experimental and numerical results was good, with some discrepancies at high stress levels. However, the model was able to predict the general trend of the stress-strain behavior of the residual soil. The main conclusions of the study are as follows: (1) The stress-strain behavior of residual soil is significantly influenced by the stress level and the confining pressure. (2) The model developed in this study can be used to predict the stress-strain behavior of residual soil under different stress conditions.
Study on Modelling the Plane Strain Behaviour of Sand and its development of a constitutive model for predicting the generalized small-strain behaviour of soils. The model incorporates non-linear stress-strain behaviour.