

Probabilistic Simulation of Triaxial Undrained Cyclic Behavior of Soils

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Abstract : In this paper, a probabilistic framework based on Fokker-Planck-Kolmogorov (FPK) approach has been applied to simulate triaxial cyclic constitutive behavior of uncertain soils. The framework builds upon previous work of the writers, and it has been extended for cyclic probabilistic simulation of triaxial undrained behavior of soils. von Mises elastic-perfectly plastic material model is considered. It is shown that by using probabilistic framework, some of the most important aspects of soil behavior under cyclic loading can be captured even with a simple elastic-perfectly plastic constitutive model.

Keywords : elasto-plasticity, uncertainty, soils, fokker-planck equation, fourier spectral method, finite difference method

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