

A Special Issue in Geomechanics for Energy and the Environment Journal on

Effective stress in multiphase porous media

Co-edited by Snehasis Tripathy and Tom Schanz

Dear Colleagues:

You are invited to submit an extended abstract of about 2 pages, including background, approach or methodology, and conclusions, for a special issue on "Effective stress in multiphase porous media" of the journal, Geomechanics for Energy and the Environment, published by Elsevier:
<https://www.journals.elsevier.com/geomechanics-for-energy-and-the-environment>.

It is well recognised in the literature that the mechanical, thermal, chemical and hydraulic behaviour of both saturated and unsaturated porous particulate material systems are governed by changes in effective stress. The applied stress and the interaction between mineral particles and pore fluid phases (liquid, vapour and air) dictate the macroscopic behaviour of the particulate porous materials. Both the mineralogy and the magnitude of pore water pressure (negative or positive) have consequential effects on the engineering behaviour of transported and residual soils. Many practical engineering problems dealing with unsaturated porous media require a thorough understanding of the changes in the negative pore water pressure (suction) and its impact on the effective stress changes and the behaviour of soils and rocks.

Several advancements have been made in estimating the effective stress in unsaturated porous media since about last six decades. The contributions are in the context of theoretical approach, laboratory experiment, and applications of effective stress principle to a variety of problems. The topic "Effective stress in multiphase porous media" has been increasingly under debate and more relevant in the last decade or so due to the emergence of several pressing topics (climate change, energy geo-structure, energy geo-storage, waste disposal, CO₂ sequestration, gas hydrate sediments, hydraulic fracturing, to name a few).

The key objective of this special issue is to collect and disseminate the latest developments on effective stress principle as applicable to multiple disciplines of science and engineering.

We invite contributions on fundamental and applied studies (experimental and theoretical) in different disciplines, including soil and rock mechanics, vadose zone, granular physics and mechanics, applied mathematics, and computational mechanics. We specifically invite papers on conceptualization, micromechanical formulation, thermodynamic formulations, and experimental validation of effective stress as applicable to volume change and shear strength problems, unifications of effective stress with water retention and hydraulic conductivity characteristics, and applications of effective stress principles in varieties of engineering and science problems.

We look forward to receiving your extended abstracts by [24th January, 2017](#).

Sincerely,

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