



Fractal and Fractional in Geotechnical Engineering

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Deadline for manuscript
submissions:

1 September 2024

Message from the Guest Editors

Fractal theory offers an efficient approach to the micro-quantification of geomaterials that is envisaged to establish connections with the macro-mechanics of geomaterials and provide a new perspective for tackling challenging engineering problems in geotechnical engineering. The fractal dimension, in particular, has shown immense potential in a wide range of geotechnical applications, including the characterization and prediction of soil porosity, soil-water characteristic curve, permeability, soil strength, microscopic pore size distribution, and particle/pore shape. Moreover, fractional-order derivative has found its applications in soil constitutive models, as well as tunnel constructions, such as the forecasting of long-term deformation induced by soil creep, detection of cracks in shield tunnel segments, viscoelastic modeling of tunnel lining, and artificial intelligence framework for tunnels. These applications have proven the crucial role of fractional-order mechanics in the geotechnical engineering design field.

The aim of this Special Issue is to present Fractal and Fractional in Geotechnical Engineering.

