عنوان مقاله:

Image-based Fluid Flow Simulation on Unconsolidated Porous Media with Considering REV Concept

محل انتشار:

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خلاصه مقاله:

Understanding 3D petrophysical properties at the pore-scale can significantly improve the prediction of the flow behavior at the macroscopic level. Recent progresses in state-of-the-art imaging techniques, such as X-ray computed tomography in one hand and development of efficient computing algorithms on the other hand, has provided an opportunity for image-based computations of petrophysical properties.In this work we describe how to calculate petrophysical properties of unconsolidated, granular porous media at the pore scale based on X-ray computed tomography images.Synthetic porous media was first made from sorted grains of a crushed calcite rock. The CT images were then captured using a CBCT dental scanner. Image processing and fluid flow simulations were conducted using different softwares. The importance of representative elementary volume (REV) concept in image-based computation of petrophysical properties was highlighted through different simulations.

کلمات کلیدی:

Permeability, Synthetic Porous Media, X-ray Tomography, Pore Scale, REV, Finite Element