

A Permeability Correlation for a Medium Generated With Delaunay Tessellation and Voronoi Algorithm by Using OpenPNM

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Abstract

Describing different transport phenomena through porous media at micro- and mesoscale represents a convenient pre-step in experimental characterization for materials. Porous media properties are required in several applications such as layers in fuel cells, heat exchangers and geological sciences. The purpose of the present work is to propose a permeability correlation for a digitally created 3D pore media generated by means of the Delaunay tessellation (DT) and Voronoi algorithm for pore position and throat characteristics, respectively. OpenPNM, an open-source pore network modeling package, has proven to be a powerful tool to compute several transport phenomena in porous media applications [1]. The pore positions are kept invariant while the throat diameter connecting the pores is changing for a selected range in order to analyze the impact of the throat diameter on the permeability.

References

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