

Grain shape and connectivity of pores in granular materials

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Connectivity of pores controls transport properties in granular materials and strongly depends on grain shape (Friedman, 2005). When the porosity is identical, electrical conductivity of a brine-filled granular material is significantly higher for spherical grains than for oblate spheroidal grains. However, connectivity of pores in granular materials has not been fully understood. In order to understand the influence of grain shape on the connectivity of pores, we conducted electrical conductivity measurements on brine-filled granular materials. Various types of sand were employed. The structure of pores and grain shape were characterized through analyses of X-ray CT images. Measurements were conducted on granular materials composed of spherical glass beads for comparison. The influence of grain shape on the connectivity of pore will be discussed in our presentation.

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