Grain generation with realistic random shapes.

Background

In granular materials, grain shapes are characterized by certain numbers like roundness, sphericity, angularity, etc. Those numbers are usually obtained by image analysis and 3d reconstruction of the grains. A new proposed algorithm is capable to create random shape multi-sphere grains with controlled characteristics by changing the size distribution of the spheres and the distribution of distances between them. A relation between the algorithm parameters and the standard shape descriptors will allow us to generate samples with any required characteristic.

Aim

- Implement the proposed algorithm for the generation of random grain shapes.
- Study the relation between the algorithm parameters and the grain shape descriptors available in the literature.