TWO DIMENSIONAL PACKING OF GRANULAR RODS

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Abstract

We investigate the two-dimensional packing properties of prolate granular materials. As the dynamics of formation can be influenced by the method of delivery of the prolate particles to the surface, we experiment with different methods which include changing the viscosity of the medium as well. For an aspect ratio of Length/Diameter = 30 the average packing fraction for the rods is found to be 0.572 ± 0.033. We measure the angular distribution of the rods and compare this with the previous experimental and computational results. We find that the peak value of the distribution function does not depend on the method of delivery of the prolate particles to the surface. We also measure the orientational order parameter of the rods as a function of the height within the pile. This order parameter is found to be dependent on the method of delivery and medium used during sedimentation.