

Abstract Submitted
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Experimental analysis of dilute particle-laden liquids over and through patterned structures¹ EILEEN HAFFNER, University of Illinois at Chicago, JONATHAN HIGHAM, University of Liverpool, PARISA MIRBOD, University of Illinois at Chicago — Particle-laden liquids are encountered in various applications both in laminar and turbulent flows. However, the concentration and velocity profiles of dilute suspensions when they are flowing over and inside a patterned surface are not yet known. This experimental study is conducted to examine the interaction of the particles in various dilute suspensions over and through a patterned structure. The patterned surface consists of cylindrical rods arranged in a square array. Particle Tracking Velocimetry data provides velocity and shear rate at the interface between the free flow region and the surface for dilute suspension flows. We examined the velocity and concentration profiles through and above the structure for various dilute suspensions. We find that the shear rate and velocity profiles are strongly dependent on the suspension properties and geometry of the structure.

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