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**Deformation regimes for immersed single particle collisions** ANGEL RUIZ-ANGULO, Centro de Ciencias de la Atmosfera, Universidad Nacional Autonoma de Mexico, MELANY HUNT, California Institute of Technology — This work presents experimental measurements of the approach and rebound of single particles colliding with a “deformable” surface in a viscous liquid. The complex interaction between the fluid and the solid phases is coupled through the dynamics of the flow as well as the deformation process. A simple pendulum experiment was used to produced single controlled collisions; steel particles were used to impact different aluminum alloy samples in different aqueous mixtures of glycerol and water as a viscous fluid. For the combination of materials proposed, the elastic limit is reached at relatively low velocities. The deformations produced by the collision were analyzed using an optical profilometer. The measurements showed that the size of the indentations is independent of the fluid media. It was found that the size of the indentations was the same for collisions in air than for the rest of the collisions using various viscous fluids.

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