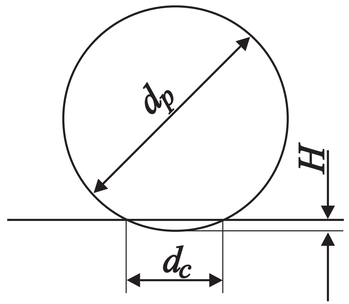
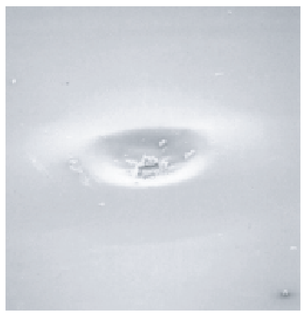
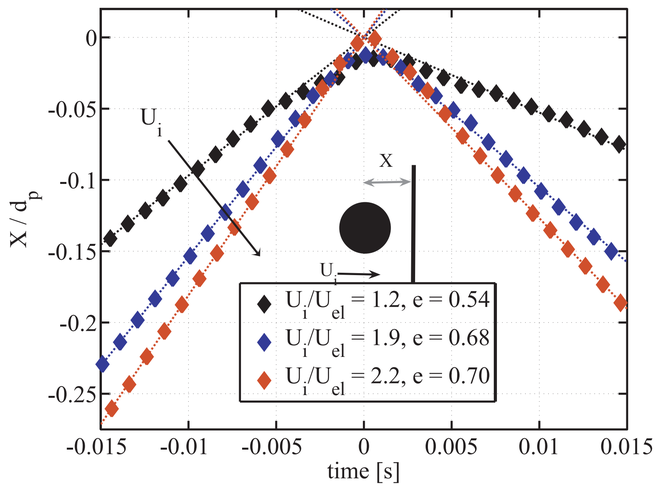
Surface Deformation in Liquid-Solid Flows

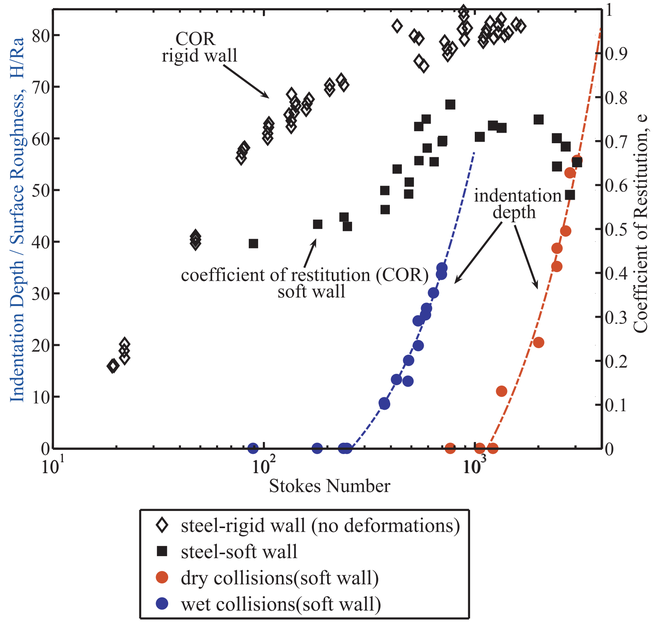
M. L. Hunt and A. Ruiz-Angulo
California Institute of Technology

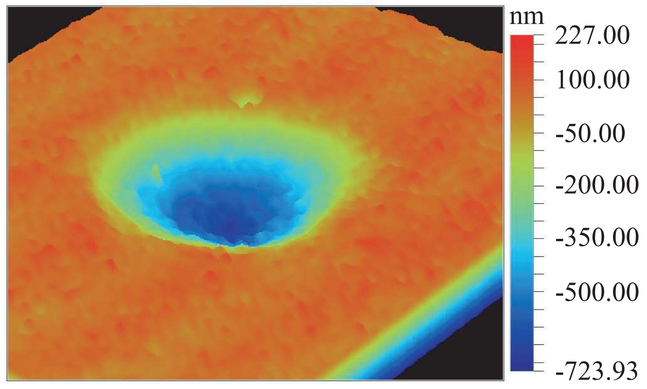
This research project presents experimental measurements of the approach and rebound of a particle colliding with a "deformable" surface in a viscous liquid.

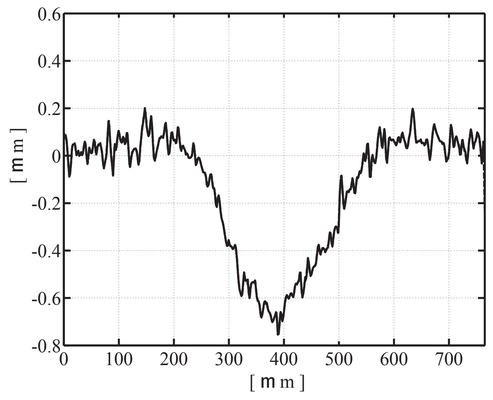












12.7 mm steel particle, U_i = 0.195 m/s. Aluminum impact surface,
U_{el} = 0.105 m/s , e = 0.68, H = 0.74 μm, Ra = 0.017 μm

Stokes number dependence:
- lubrication effect and elastic deformation
- lubrication effect and elastic-plastic deformation
- negligible lubrication effect and elastic-plastic deformation

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