Granular jet impact: probing the ideal fluid description

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ABSTRACT

We investigate the impact of a granular jet on a finite target by means of particle simulations. The resulting hydrodynamic fields are compared with theoretical predictions for the corresponding flow of an incompressible and rotation-free fluid. The degree of coincidence between the field obtained from the discrete granular system and the idealized continuous fluid flow depends on the characteristics of the granular system, such as granularity, packing fraction, inelasticity of collisions, friction and target size. In certain limits we observe a granular–continuum transition under which the geometric and dynamic properties of the particle jet and the fluid jet become almost identical.

REFERENCES

[1] P. Müller, A. Formella and T. Pöschel, "Granular jet impact: probing the ideal fluid description", *J. Fluid Mech.*., **751**, 601-626 (2014).