Abstract Submitted
for the DFD17 Meeting of
The American Physical Society

The motion of a cloud of solid spherical particles falling in a cellular flow field at low Stokes number BENJAMIN MARCHETTI, LAURENCE BERGOUGNOUX, ELISABETH GUAZZELLI, Aix Marseille Univ, CNRS, IUSTI — We present a jointed experimental and numerical study examining the influence of vortical structures on the settling of a cloud of solid spherical particles under the action of gravity at low Stokes numbers. The two-dimensional model experiment uses electro-convection to generate a two-dimensional array of controlled vortices which mimics a simplified vortical flow. Particle image-velocimetry and tracking are used to examine the motion of the cloud within this vortical flow. The cloud motion is compared to the predictions of a two-way-coupling numerical simulation.

Benjamin Marchetti
Aix Marseille Univ, CNRS, IUSTI

Date submitted: 25 Jul 2017 Electronic form version 1.4