Abstract Submitted
for the DFD08 Meeting of
The American Physical Society

Shear segregation of granular materials as a function of particle size and confining pressure LAURA GOLICK, KAREN DANIELS, North Carolina State University — We experimentally investigate the dependence of granular shear segregation rates on particle size ratio and confining pressure. Within a cylindrical annulus, we shear two monodisperse layers of spherical glass beads, with an equal volume of small beads initially placed in a layer above the large. From changes in the height of the sample, we compute the mixing and segregation rates as a function of particle size ratio. We observe that contrasting as well as similar particle size ratios segregate and mix more slowly than intermediate particle sizes, in disagreement with kinetic sieving theory. Increasing pressure reduces the segregation and mixing rates.

Karen Daniels
North Carolina State University

Date submitted: 01 Aug 2008 Electronic form version 1.4