Abstract Submitted
for the MAR08 Meeting of
The American Physical Society

Phase separation in asymmetric 2D binary hard-sphere mixtures[1]
CAMILO GUAQUETA, ERIK LUIJTEN, University of Illinois at Urbana-Champaign — We investigate the phase behavior and structural properties of highly asymmetric binary mixtures of additive hard spheres in two dimensions, using Monte Carlo simulations in both the canonical and restricted Gibbs ensembles. To tackle large diameter ratios between the large and small species we use an efficient geometric cluster algorithm. Results for the pair correlation functions, compressibility, and depletion potentials are presented and compared to theoretical predictions, for diameter ratios from $q = 2$ to $q = 400$ and over a wide range of packing fractions. We explore and comment on the possibility of a demixing transition at high q and total packing fraction.

[1]This work is supported by the National Science Foundation through Grant No. DMR-0346914.

Camilo Guaqueta
University of Illinois at Urbana-Champaign

Date submitted: 27 Nov 2007 Electronic form version 1.4