Abstract Submitted
for the MAR16 Meeting of
The American Physical Society

Electric-field mediated propulsion in binary colloidal suspensions LAURA COLON-MELENDEZ, MATTHEW SPELLINGS, SHARON C. GLOTZER, MICHAEL J. SOLOMON, University of Michigan — We observe propulsion of pairs of unequally sized dielectric colloidal spheres in a plane perpendicular to the applied AC electric field. The fully reversible and reconfigurable effect is observed at different applied voltages and frequencies. Using confocal microscopy and particle tracking methods, we study the degree of active motion as a function of the number of particles in the dynamic clusters. The observed phenomenon is consistent with previous observations of asymmetric dumbbell propulsion in electric fields attributed to asymmetric electrohydrodynamic flow (Ma et al, PNAS 2015 112 (20) 6307-6312).

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Date submitted: 06 Nov 2015 Electronic form version 1.4