Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

DNA-mediated self-assembly of tetrahedral plasmonic clusters for metafluids NICHOLAS SCHADE, LI SUN, Harvard University, YOU-JIN LEE, Sungkyunkwan University, JONATHAN FAN, University of Illinois at Urbana-Champaign, FEDERICO CAPASSO, Harvard University, GI-RA YI, Sungkyunkwan University, VINOTHAN MANOHARAN, Harvard University — We direct the self-assembly of clusters of gold nanospheres with the goal of creating a bulk, isotropic, optical metafluid. We use spherical gold nanoparticles that are exceptionally smooth, monocrystalline, and monodisperse. These particles exhibit highly reproducible scattering spectra compared with commercially available gold colloids. We label them with DNA sequences and mix them together to self-assemble small clusters. By controlling the particle sizes and the interactions between them, we maximize the yield of tetrahedral clusters, the ideal structures for isotropic metamaterials.

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Date submitted: 15 Nov 2013 Electronic form version 1.4