Abstract Submitted
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Plasmon Induced Nanoparticle Movement Driven by Fast Electrons P.E. BATSON[1], IBM T.J. Watson Research Center, A. REYES-CORONADO, A. RIVACOBA, Donostia International Physics Center, Spain, J. AIZPURUA, P.M. ECHENIQUE, Donostia International Physics Center, Spain, Centro de Fisica de Materiales CSIC-UPV/EHU, Spain, R.G. BARRERA, Instituto de Fisica, Universidad Nacional Autonoma de Mexico, Mexico — Nanometer-sized Au clusters, deposited on amorphous carbon, readily move under a sub-Angstrom electron beam, often coalescing with neighboring clusters (P.E. Batson, Microsc. Microanal., **14** 89-97, 2008). Movement begins before cluster contact and finishes with a few Au atoms remaining bound to the substrate, suggesting that an external applied force, sufficiently large to break cluster-substrate bonds, drives clusters together. Theoretical modelling shows that forces created by swift electron excitation of surface plasmons having bispherical symmetry are directed properly, and are large enough to produce this behavior. For single clusters, beam-cluster forces are weakly attractive, but in the two- cluster case, forces become stronger and are directed along the line connecting the two clusters, producing coalescence.

[1]Current Address: Institute for Advanced Materials, Devices and Nanotechnology, Rutgers University, Piscataway, NJ

Philip E. Batson
Rutgers University

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