Abstract Submitted
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Atomically-Flat Nanosurface Arrays for STM and Photonic Studies D.H. DAHANAYAKA, X.J. WANG, J.C. KEAY, S. HOSAIN, W.D. TENNYSON, T.G. EASLEY, G.D. LIAN, M.B. JOHNSON, L.A. BUMM, Center for Semiconductor Physics in Nanostructures Department of Physics and Astronomy, University of Oklahoma Norman, OK 73019, USA — Flat gold nanoparticles (FGNPs) can be used as atomically-flat gold substrates for STM studies. When supported on ITO coated glass the FGNPs can also be used as atomically-flat photonic substrates. Transmission electron microscopy (TEM) shows that FGNP's can be prepared 100–500 nm across with shapes that range from triangular to hexagonal with thicknesses of 15-25 nm. Dark-field optical microscopy is a convenient method for evaluating the FGNP arrays because the FGNPs and spherical gold nanoparticles are distinguished easily. STM and AFM reveal atomically flat terraces on the large {111} FGNP facets. An optimized method for growing the FGNPs and for depositing them on ITO coated glass with a high particle density is presented.

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