Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

Silver and Gold:Palladium nanoparticles produced by Inert gas condensation[1] EDUARDO PEREZ-TIJERINA, MIGUEL A. GRACIA-PINILLA, SERGIO MEJIA-ROSALES, Universidad Autonoma de Nuevo Leon, Monterrey, N.L. Mexico , 66450, WENCEL DE LA CRUZ HERNANDEZ, CCMC-UNAM, Ensenada, B.C. Mexico 22800, MIGUEL JOSE-YACAMAN, Chemical Engineering Department and Texas Advanced Materials Center, The University of Texas-Austin, Austin, TX 78712 — We report the synthesis of (AuPd and Ag) metallic nanoparticles (NPs) deposited on silicon and sapphire wafers and TEM grids. The NPs are formed by an inert gas condensation technique, based on dc-magnetron sputtering followed by condensation in high pressure zone. The size of the NPs was controlled through the variation of gas flow (Ar and He) inside the condensation zone, magnetron power, and condensation zone length. The NPs are negatively charged and may therefore be mass selected by a quadrupole mass filter, obtaining the size-distribution of NPs. We performed morphological, structural and composition studies of the NPs by mass spectroscopy, AES, XPS, AFM, UV-Visible spectroscopy, TEM, and HRTEM. Our procedure allows both a remarkable control over average size of the nanoparticles on the sample, and deviations below 5% around this average size.

[1]This work was supported by the Council for Science and Technology of the State of Nuevo Leon, Mexico, and CONACYT, Grant 43772.

Sergio Mejia
Universidad Autonoma de Nuevo Leon

Date submitted: 21 Nov 2006 Electronic form version 1.4