

“Nanotechnology and nanomaterials”

Scanning electron microscopy of gold and gold-palladium nanoparticles synthesized by pulse electrolysis

**O. Kuntiyi¹, E. Fratini², A. Girella³, I. Saldan^{3,4}, C. Milanese³,
O. Dobrovetska¹, L. Sus¹, Ye. Okhremchuk¹, O. Reshetnyak⁴**

¹ *Institute of Chemistry, Lviv Polytechnic National University, Bandery 12, Lviv 79013, Ukraine, E-mail: kuntiy@ukr.net*

² *Department of Chemistry & CSGI, University of Florence, Via della Lastruccia 3, 50019 Sesto Fiorentino, Italy*

³ *Pavia H2Lab, Department of Chemistry & CSGI, University of Pavia, Via Taramelli 16, Pavia 27100, Italy*

⁴ *Department of Physical and Colloid Chemistry, Ivan Franko National University of Lviv, Kyryla & Mefodia 6, Lviv 79005, Ukraine.*

The Au and Au-Pd nanoparticles were obtained by pulse electrolysis [1-3] in dimethyl sulfoxide solution with 4×10^{-3} M HAuCl_4 and mixture of 4×10^{-3} M HAuCl_4 and 4×10^{-3} M PdCl_2 . Around 15-25 nm of Au and less than 40 nm of Au-Pd nanoparticles were detected by scanning electron microscopy in the top of the glassy carbon electrode after 1-5 and 50 electrochemical pulse cycles, respectively. Electrode surface analysis suggested a uniform distributed metal nucleation although it could not be examined by energy dispersive X-ray spectroscopy.

The controlled metal deposition can be used for preparation of a special catalytic system with the main requirements for both electrode surface and non-aqueous electrolyte [4].

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