Silver Nanoparticle Coatings on Optical Glass

Victor Torres*, Mónica Popa, Daniel Crespo, José M. Calderón-Moreno

Department of Applied Physics, Universitat Politècnica de Catalunya, Av. Canal Olimpic s/n
Castelldefels 08860 Barcelona, Spain
e-mail: jose.calderon@upc.edu
Web page: http://congress.cimne.upc.es/iib07

ABSTRACT

We deposited monolayer films of shaped Ag nanoparticles on optical substrates using a simple low-temperature wet-chemical route. We add silver nitrate and sodium borohydride as reducing agent to a water solution with sodium citrate, hydrogen peroxide and poly(vinyl) pyrrolidone, in order to prepare a colloidal solution of the Ag nanoparticles, and deposited the monolayer film on optical glass substrates by spin coating.

We have investigated the size and shape of the silver nanoparticles by TEM and HRTEM and measured their UV-Vis absorption spectra. The UV-Vis spectra of the films and colloidal solutions are dominated by the plasmon resonance of the nanoparticles, directly related to their typical dimensions.

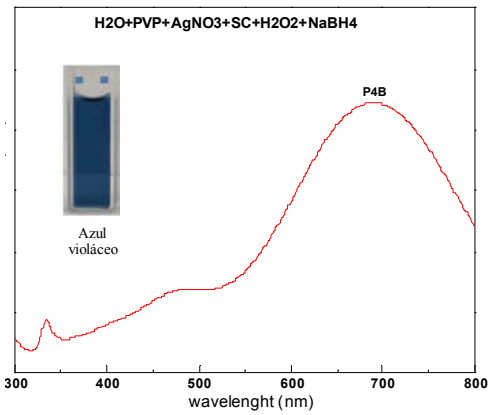

Fig. 1. UV-Vis spectral features of the colloidal silver solution, shown in the inset.

REFERENCES

[1] V. Torres, M. Popa, J. M. Calderon, D. Crespo, “Silver Nanoprism Coatings on Optical Glass Substrates”, *Microel. Eng.,* in press (2007).