

# **Plasmon-induced photochemical synthesis of silver triangular prisms and pentagonal bipyramids by illumination with light emitting diodes**

Martín D. Bordenave, Alberto F. Scarpettini, María V. Roldán, Nora Pellegrini, Andrea V. Bragas

## **RESUMEN**

We have grown silver prisms and pentagonal bipyramids, induced by plasmon excitation on a colloidal solution under the irradiation of light emitting diodes of different colors. Two methods of synthesis of the seeds were tested and their growth evolution recorded, in order to analyze the effect of the chemical synthesis and the color of the irradiation on the morphology and size of the final product. We show that the conversion rate into anisotropic nanoparticles is determined by the chemical environment and the shift of the irradiation wavelength with respect to the plasmon resonance of the seeds. The conversion rate defines the final morphology of the nanoparticles, whereas the size of the nanoparticles is univocally determined by the wavelength of irradiation, irrespective of the method to prepare the seed solution.

Key words: Metals, Nanostructures, Chemical synthesis, Optical properties