

# High resolution imaging using nanoparticle based probes

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## RESUMEN

New plasmonic probes, based on silica microspheres decorated with metal nanoparticles (Figure 1), are built and used to confine and enhance the electric field in their interaction with the sample, giving ultra-high optical resolution in a wide variety of samples [1]. The coverage and aggregation processes of nanoparticles on plane and spherical substrates were systematically studied [2]. These probes present red shifted resonances, dominated by the formation of small nanoparticle clusters [3]. Approach curves with the new probes show clearly field enhancement at very short probe-sample distances, and depend strongly on the incoming wavelength and polarization. Optical contrast was achieved in flat samples composed by materials of different dielectric constants, and images were obtained using optical feedback.

Key words: UTN; FRD; Plasmonic substrates; metallic nanostructures