**Plasmonic trapping: controlling nanoparticles at the nanoscale**

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Strong optical fields can be created in plasmonic metamaterials. In turn, these fields can produce intense optical forces that can be used to trap and manipulate nanoscopic entities into, or at the vicinity of, the metamaterial. After recalling experiments where we have demonstrated the trapping of 10nm nanoparticles in the gap of plasmonic antennas [W. Zhang et al., Nano Letters vol. 10, p. 1006-1011 (2010)], I will explore the optical forces that can be generated in different plasmonic metamaterials. Emphasis will be on the relation between the spectral distribution of optical resonances in these systems and the strength and localization of the corresponding optical forces. The integration of such plasmonic trapping into a microfluidic environment will also be presented as a powerful approach for novel bio-sensing applications. Finally, I will show that it is possible to combine plasmonic trapping with surface enhanced Raman spectroscopy to best use the dramatic field enhancement produced in the nanostructure by trapping the analyte into the hot spot.