



Women in Science – 2<sup>nd</sup> Erlangen Symposium

## Synthesis and Applications of Plasmonic Nanoparticles

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The novel field of Nanoplasmonics focuses on the manipulation of light using materials with significantly smaller sizes than the radiation wavelength. This is typically achieved using nanostructured metals since they can very efficiently absorb and scatter light due to their ability to support coherent oscillations of free (conduction) electrons. The great development of nanoplasmonics is based on fine control over the composition and morphology of nanostructured metals. Particularly, wet-chemical methods have the advantage of simplicity and large-scale production, while offering several parameters that could determine the final particle morphology and surface properties, which is essential for further applications. This seminar will provide an overview of the optical properties of metal nanoparticles as well as the synthetic strategies to achieve size and shape control. Besides, I will show recent developments of the FunNanoBio Group in the Nanoplasmonic field with special emphasis on plasmonic nanostructures for (bio)sensing based on surface-enhanced Raman scattering and localized surface plasmon resonance and catalysis.