

Soutenance de thèse

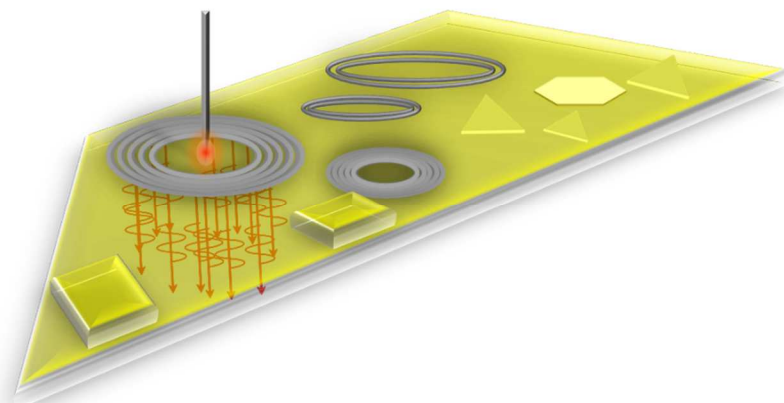
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Using Plasmonic Nanostructures to Control Electrically Excited Light Emission

Surface plasmon polaritons (SPPs) are collective oscillations in the electrons density at the surface of a metal coupled with electromagnetic waves. As a major branch of nanophotonics, the interaction of SPPs and various metallic nanostructures are fascinating; exploring these interactions leads to the control of the emitted light and plasmons.

In this thesis, we experimentally investigate the interaction between the electrically excited SPPs and various Au nanostructures. Our electrical excitation is realized by using the inelastic tunnel current from a scanning tunneling microscope (STM). For the Au nanostructures, we find that, compared to a flat thin gold film, *structured* Au films display an extraordinary capacity to control and shape the emitted radiation. We focus our study on *circular* plasmonic lenses, *elliptical* plasmonic lenses, individual triangular platelets and planar multi-layer stack structures. Using these nanostructures, we control the collimation and direction of the light originating from STM-excited SPPs and probe the optical properties of these structures.



vendredi 16 Février 2018 à 9h30

Bât 520 – Amphithéâtre (3^{ème} étage)

Université Paris-Sud, 91405 Orsay Cedex

La soutenance sera suivie d'un pot auquel vous êtes chaleureusement conviés.