



Internship offered in M2 2017-2018

Responsible for internship

Name:

Gallas Bruno

Location:

INSP - 4 place Jussieu, 75005 Paris – Tour
22-32 étage 5, bureau 523

Group: Nanostructures and Optics

E-mail: bruno.gallas@insp.jussieu.fr

Tel: +33 (0)1 44 27 51 24

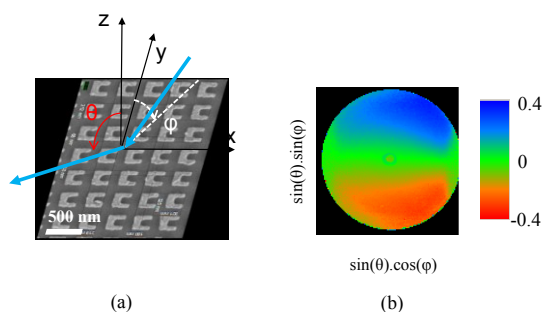
Group website: <http://www.insp.jussieu.fr/-Nanostructures-et-optique-.html>

Internship topic:

Enhancement of optical activity in metallic nanostructures for the detection of biomolecules

The enhancement of the optical properties associated with localized surface plasmon resonances in metallic nano-objects find numerous applications in nanophotonics. In particular, it has been shown that resonators exhibiting optical activity may be used to concentrate a chiral local field. This property may be used to exacerbate the sensitivity of detectors to biomolecules based on the measurement of circular dichroism.

Circular dichroism is defined as the reflectivity difference between right and left circular polarizations. We have observed this effect in arrays of U-shaped plasmonic resonators (a) where the circular dichroism depends on the direction of propagation φ (b). We are now aiming at using this effect to detect chiral biomolecules.



Project : during the internship, samples will be realized in the clean room of the INSP. The

functionalization of the samples with test molecules will be developed using soft chemistry methods associated with lithography. The optical properties (polarization...) of the test molecules coupled with the resonators at the plasmon resonances will be investigated. This will allow probing the strength of the coupling between the resonators and molecules.

Techniques involved: lithography, optical measurements, soft chemistry

Type of internship: experimental

Paid internship: Yes

Can this internship be continued for a PhD? Yes

If yes, type of PhD funding envisaged is: ED