Valencia Nanophotonics Technology Center

UNIVERSITAT POLITÈCNICA DE VALÈNCIA

THz detection by molecular optomechanical coupling in a plasmonic nanoantenna

PhD and Post-doctoral positions in the "Nanophotonics Technology Center" at Universitat Politècnica de València, Spain

Plasmonic nanoantennas enable light confinement in deep-subwavelength regions, which enormously strengthen light-matter interaction at the nanoscale. This can be applied, for instance, to enhance Raman processes in molecules coupled to the nanoantenna. It has been recently showed that such Raman processes can be interpreted in terms of molecular optomechanics in a subwavelength cavity. Noticeably, if the molecule has a large infrared or THz absorption, it may act as a transducer between such IR or THz fields and optical fields, so the system will perform as a THz or IR detector.

We are offering a PhD and a post-doctoral position to work in the design, fabrication and experimental demonstrations of nanoantenna-based system aimed at the demonstration of THz detectors relying on molecular optomechanics.

Specific requirements:

PhD position: the candidates must have a degree in Physics or Telecom engineering. Master studies related to optics and nanotechnology will be very valuable.

Post-doctoral position: the candidates must have a PhD degree in one of these topics: cavity optomechanics, plasmonic nanoantennas, THz technology, Raman spectroscopy. They have to show extensive expertise in design and optical characterization. Experience in clean-room nanofabrication will be also considered.

In both cases, a high level in English is mandatory.

Candidates should send the following documents: motivation letter (1 page), short CV, list of publications, and - at least two - reference contacts, to Dr. Alejandro Martinez (amartinez@ntc.upv.es) and Ms. Isabel Salas (misalas@ntc.upv.es) in cc.

Starting date: March 1st, 2019.

Duration: up to 3 years (renewable on a yearly basis)

Additional information on the group: http://www.ntc.upv.es/english/metamaterials.html

Location: http://www.ntc.upv.es/english/contact.html

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