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Nanogauges for integration of strain sensors integrated into matter

For the past twenty years, nano-optics has emerged as a promising research field thanks to huge progress in nanofabrication and offers great technological potential for applications in fields such as biology, medicine or chemistry. Coupling between plasmonic nanoparticles (NPs), well-known as the plasmon ruler equation, was recently investigated by fabricating arrays of NP dimers with various inter-particle distances using e-beam lithography. In this talk, we aim to illustrate how it should be possible to break through frontiers between mechanics and plasmonics in the next future by showing our first results on the use of gold nanogauges for strain investigation as well as recent advances published in the literature. In particular, the opportunity to develop a new generation of color-changing strain sensors will be discussed.

Biography

Thomas Maurer is Associate Professor at the University of Technology of Troyes. He has been developing a research activity at the interface of nanotechnology, mechanics and optics, which can be designed as mechanoplasmonics. In parallel, he is a member of the action laboratory of excellence executive committee and responsible of the smart sensors scientific work group whose aim is to integrate sensing functionalities into matter.

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