

Nanoplasmonics and surface enhanced spectroscopy

Molecular nanoplasmonics – current state and future trends

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The interactions between molecules in the vicinity of plasmonic (Au, Ag etc.) nanostructures (i.e. molecular nanoplasmonics) represents an interdisciplinary research field based on photonics, chemistry and biology. Rapidly growing interest in molecular nanoplasmonics lies in its potential applications for highly miniaturized and sensitive photonic devices by controlling, manipulating, and amplifying light on the nanoscale materials / bionanostructures [1-2]. Furthermore, our rapidly widened possibilities for preparation of plasmonic nanostructures [3] together with improving in understanding of the interactions between adsorbed molecules and nanostructures is having a significant impact on a broad spectrum of other applications, including bio- and chemical sensing, materials study, metamaterials, tunability of plasmon resonance, surface enhanced spectroscopies (SEIRA, SPLS, SERS). The current state and future trends of molecular nanoplasmonics will be discussed.

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