InfraRed Optical Nanostructures

FWF SFB INFRARED OPTICAL NANOSTRUCTURES

IR-ON Seminar

Surface plasmons meet organic optoelectronics

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Surface plasmons are optical modes at the interface of a metal and a dielectric which are of interest in a variety of fields as nanooptics, surface enhanced spectroscopy, metamaterials and photonic devices [1]. Recent years have brought substantial progress in controlling surface plasmons with micro- and nanostructures forming waveguides, mirrors, splitters or resonators. To complement this toolbox of passive plasmonic elements by dynamic or active devices, organic semiconductor devices have proven efficient. On one hand, organic light emitting diodes can be applied for direct surface plasmon excitation [2]. On the other hand, surface plasmon detection can be based on integrated organic diodes [3].

[1] W.L. Barnes et al., Nature 424, 824, 2003

[2] D.M. Koller et al., Nature Photonics 2, 684, 2008

[3] H. Ditlbacher et al., Appl.Phys.Lett. 89, 161101, 2006

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