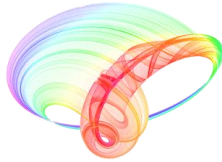


# Book of abstracts



## PHOTONICA2019

The Seventh International School and Conference on  
Photonics, 26 August – 30 August 2019, Belgrade, Serbia

& Machine Learning with Photonics Symposium  
(ML-Photonica 2019)



& ESUO Regional Workshop



& COST action CA16221



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## VUV Angle-resolved Photoelectron Spectroscopy on Isolated Hybrid Nanostructures

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Aerosol photoemission spectroscopy became an important method for studying electronic structure of submicrometer particles without the influence of substrate [1]. It comprises irradiation of the focused particle beam by either vacuum-ultraviolet (VUV) or soft x-ray radiation under high vacuum conditions and subsequent detection and discrimination of the photoelectrons according to their kinetic energies and momenta [2-4]. As intermediates between atoms or molecules and macroscopic matter, nanometer-sized objects exhibit specific electronic and transport properties that strongly depend on their size, morphology and surface chemistry. Modification of nanoparticle surfaces by conjugation with molecules presents a convenient method of altering a wide range of physicochemical characteristics of the nanomaterials, which does not require development of new synthetic procedures. Furthermore, by a proper choice of molecules used in surface modification, additional properties of the hybrid nanostructures can be achieved, which could not be found in the starting materials. In this lecture, we will present the selected results of our investigations on hybrid nanostructures comprised of noble metal and metal oxide nanomaterials functionalized by biologically relevant molecules. Particular attention will be given to the vacuum-ultraviolet angle-resolved photoelectron spectroscopy (VUV ARPES) studies on isolated functionalized nanosystems performed at the DESIRS beamline. The emergence of the photoelectron circular dichroism in hybrid nanoparticles will be briefly discussed.

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