



СЕМИНАР

У уторак, 24.03.2015. са почетком у 11 часова у сали „Звонко Марућ“ Института за физику одржаће се семинар:

“Investigation of biomolecular processes using DNA origami nanostructures”

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DNA origami nanostructures allow for the arrangement of different functionalities such as specific DNA structures, nanoparticles, proteins and various chemical modifications with unprecedented precision [1]. The arranged functional entities can be visualized by atomic force microscopy (AFM), and spectroscopically characterized for instance using surface enhanced Raman scattering (SERS) and fluorescence spectroscopy. In the presentation three topics will be discussed, in which functionalized DNA nanostructures are used: (i) The investigation of fundamental mechanisms of DNA radiation damage at a single-molecular level, more precisely, the nucleotide sequence dependence of radiation induced DNA strand breaks [2]. (ii) The fabrication of plasmonic nanostructures, which can be used for highly-sensitive SERS measurements down to the single-molecule level [3]. (iii) The selective formation of guanine quadruplex structures on DNA origami substrates, which is studied by Förster resonant energy transfer (FRET) [4].

References:

[1] I. Bald and A. Keller, *Molecules* 19, 9 (2014).

[2] a) A. Keller et al., *Sci. Rep.*, 4 (2014);

b) A. Keller, J. Kopyra, K. V. Gothelf, and I. Bald, *New J. Phys.* 15 (2013);

c) A. Keller et al., *ACS Nano* 6, 5 (2012);

[3] J. Prinz et al., *J. Phys. Chem. Lett.* 4, 23 (2013).

[4] L. Olejko, P. J. Cywinski, and I. Bald, *Angew. Chem. Int. Ed.* 54 (2015).

Seminar at IPB under the bilateral project Serbia - DAAD 2014-2015: *“The study of DNA radiation damage on the molecular level”*