

Prof. Eva Kovačević:

"Plasma synthesis and functionalization of materials"

Low temperature plasmas are a versatile tool for synthesis, activation and functionalization of various materials and for different applications- from astrophysics to technology. Our work is oriented towards synthesis of nanomaterials and nanostructured materials and their functionalization in order to control their surface wettability. The applications of these materials are in the field of biosensors or photonics.

Plasma synthesis in this project is oriented towards nanostructured carbon or oxide surfaces (nanoparticles, rods, tubes). Plasma treatment of this materials, depends on the type of plasmas brings on the surface new functional groups- for example amino groups.

In order to obtain the full control of the procedure necessary is full control of plasma process- thus the various in-situ and ex-situ plasma and material diagnostics would be applied- from optical spectroscopy, mass spectroscopy, MW interferometry, in-situ FTIR.

The internship student will work in international environment and in contact with colleagues from different institutes.

Profile of the student:

The student should follow graduate studies in Physics, FER or related. He/she will be first trained to plasma and certain material analysis methods and to the specific approach required for investigations of nanomaterials.

Experimental skills and care will be needed to carry out this project. The student should also have good knowledge of English language and communication skills to participate in this collaborative work.

Keywords: Nanocarbons, nanostructured oxides, low temperature plasmas, spectroscopy, FTIR, mass-spectroscopy, microscopy

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