



SEMINAR PROJEKTA #OI 171020

U utorak, 9.07.2013. sa početkom u 13 časova u sali “Zvonko Marić” Instituta za fiziku održaće se seminar:

“MULTISCALE SCIENCE FOR TUNING INTERFACES AT NANOSCALE”

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Plasma-Material Interface (PMI) mixes materials of the two worlds, creating a dynamical surface which is one of the most challenging areas of multidisciplinary science, with many fundamental processes and synergies. The traditional trial-and-error approach to developing first-wall materials and component solutions for current and future fusion reactors is becoming prohibitively costly because of the increasing device size, curved toroidal geometry, access restrictions, and complex programmatic priorities. The experimentally validated atomistic theory and computation for studying dynamics of creation and evolution of the PMI under irradiation by heavy particles (atoms, molecules) at carbon, lithiated carbon and tungsten, as well as the emerging elastic and inelastic processes, in particular retention and sputtering chemistry, will be shown.

The *National Institute of Health* research initiatives over the past ten years resulted in the reduction of the human *DNA sequencing* cost by more than 100,000 times, reflecting the highest rate of progress in history of science. This research still requires development of fast, label-free and cheaper technologies, which can be massively produced and used. Particularly interesting is the prospect of the so-called physics-based third-generation methods, since these are intrinsically fast and can operate on a single DNA or protein polymer. Multiscale theory and computation, with predictive powers for localization, control, detection and recognition of biomolecules in nanofluidic environment will be presented.

Predrag Krstic is senior research scientist of Joint institute of Computational Sciences and adjunct professor of physics at Department of Physics and Astronomy of University of Tennessee, till recently senior staff scientists at Oak Ridge National Laboratory, founder and owner of Theoretik Consulting, contractor of NIH, ORNL, Arizona State University, Yale University.

Dr. Krstić completed his PhD degree at City College of C.U.N.Y on the multiphoton theory, after obtaining his BSC and MSC in technical physics from University of Belgrade. His research includes a wide range of fields, from physical methods for DNA sequencing and biomolecule sensing, plasma-facing surface physics, to molecular collision physics, quantum and classical molecular dynamics, multiphoton physics and chemistry. This work is published in more than 200 journal papers, as well as in book chapters and patents. He has been PI/PD and Co-PI in a series of grants with DOE, NIH, NSF, and IAEA, consultant of International Atomic Energy Agency, Fellow of the American Physical Society.

More info at <http://www.jics.tennessee.edu/computational-applied-physics/predrag-krstic>