



ZAJEDNIČKI SEMINAR

07. listopada 2014. (utorak) u 11:00 sati (točno)
PMF-fizika, Bijenička cesta 32, Predavaonica 201

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Statistical Physics of Gene Regulation in Bacteria

Cells make decisions all the time about what to eat, where to go, and what to become. At the heart of this cellular decision making is regulation of gene expression, the process by which cells selectively turn their genes on and off. Recent experiments have begun to probe gene expression at the single molecule level in single cells, revealing the biophysical mechanisms of regulation in quantitative detail. In this talk I will review recent experimental advances along these lines and the theoretical models that are being put forth to greet them. In particular, I will describe how single-cell measurements of noise in gene expression can be used to test molecular mechanisms of gene regulation. I will also comment on how noisy gene expression might confer an evolutionary advantage to bacterial cells when faced with a fluctuating environment.

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Jané Kondev is a theoretical physicist who works on problems in molecular and cell biology using a combination of theory and experiment. He obtained his BSc in theoretical physics at the University of Belgrade (1990) and his PhD in theoretical condensed-matter physics from Cornell University (1995). He did postdoctoral work at Brown and Princeton University, on the quantum Hall effect and statistical mechanics and field theory of fluctuating lines and surfaces. Since 1999 he has been at Brandeis University where he is Professor and Chair of Physics, co-director of the Graduate Program in Quantitative Biology, and is a Professor of the Howard Hughes Medical Institute.