ZAKŁAD BIOFIZYKI

ZAPROSZENIE

Szanowni Państwo,

Zapraszam serdecznie na seminarium, na którym

Dr Andrzej Kulik

Ecole Polytechnique Fédérale de Lausanne (EPFL)
Laboratory of Physics of Living Matter
Lausanne, Switzerland

Wygłosi wykład pt.:

"Quantitative measurements at nanoscale".

Seminarium odbędzie się we wtorek 3 grudnia br., w sali 613 o godz. 10^{15}.

Wiesław I. Gruszecki

Streszczenie

Atomic Force Microscopy (AFM) is well established as an imaging tool. Offering tens of pN force sensitivity and sub-nanometer displacement measurements, AFM can be used as a measuring tool. Quantitative measurements using AFM are a little bit more difficult than imaging.
We successfully studied Carbon nanotubes (CNT) [1, 2], Microtubules [3], local mechanical properties of Bones [4] and reliably, size of nano-particles [5]. Optical Tweezers were used as 3D intracellular nanomanipulator [6]. First measurements of intracellular elasticity will be presented.

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2. Kis, A., G. Csanyi, J.P. Salvetat, T.N. Lee, E. Couteau, A.J. Kulik, W. Benoit, J. Brugger, and L. Forro, *Reinforcement of single-walled carbon nanotube bundles by intertube bridging.* Nature Materials, 2004. **3**(3): p. 153-157.
3. Kis, A., S. Kasas, B. Babić, A. Kulik, W. Benoît, G. Briggs, C. Schönenberger, S. Catsicas, and L. Forró, *Nanomechanics of Microtubules.* Physical review letters, 2002. **89**(24): p. 248101.
4. Hengsberger, S., A. Kulik, and P. Zysset, *Nanoindentation discriminates the elastic properties of individual human bone lamellae under dry and physiological conditions.* Bone, 2002. **30**(1): p. 178-184.
5. Lee, K., M. Duchamp, G. Kulik, A. Magrez, J.W. Seo, S. Jeney, A.J. Kulik, L. Forró, R.S. Sundaram, and J. Brugger, *Uniformly dispersed deposition of colloidal nanoparticles and nanowires by boiling.* Appl. Phys. Lett., 2007. **91**(17): p. 173112.
6. Bertseva, E., A.S.G. Singh, J. Lekki, P. Thévenaz, M. Lekka, S. Jeney, G. Gremaud, S. Puttini, W. Nowak, G. Dietler, L. Forro, M. Unser, and A.J. Kulik, *Intracellular nanomanipulation by a photonic-force microscope with real-time acquisition of a 3D stiffness matrix.* Nanotechnology, 2009. **20**(28).

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