

Program

Wednesday, July 4, 2012

08:30 – 10:00 Registration (Main Hall)

10:00 – 10:30 Opening ceremony

- Opening address : **T. Burczyński, G. Szefer, T. Kowalewski, A. Kucaba-Piętal** (IPPT Aula)
- Concerto for flute and piano by Monika Nowacka - Sekula, Maria Peradzynska - Filip, Anna Luczak playing Franz Doppler, Friedrich Kuhlau, Claude Bolling

10:30 - 10:50 Coffee break

Session I: *Chairpersons: Tadeusz Burczynski, Tomasz A. Kowalewski*

10:50 - 11:20 T. Lipniacki , *invited lecture:*

Innate immune responses at single cell level

11:20 - 11:35 R. Kwapiszewski

Lab-on-a-chip as a tool for laboratory diagnostics of lysosomal storage disorders

11:35 - 11:50 K. Ziólkowska

Three-dimensional cancer tumor model in a microfluidic device

11:50 - 12:05 M. Ekwińska

BCS ISFET as transcutaneous blood capnometry sensor

12:05 - 12:20 W. Kubicki

Lab-on-a-chip instrument for electrophoretic analysis of genetic material

12:20 - 12:35 T. Kowalczyk

Application of nanofibers as drug delivery systems

12:35 - 12:50 K. Awsiuk

Methods using biotin-streptavidin system to immobilize oligonucleotide probes on biosensor surfaces evaluated with microscopy and spectroscopy

12:50 - 13:05 E. Postek

A survey of tensegrity models of cells with design sensitivity analysis

13:05 – 14:30 Lunch

Session II: *Chairpersons: Gwidon Szefer, Anna Kucaba-Piętal*

14:30 - 15:00 D. Elbaum, *invited lecture:*

ZnO biosensing

15:00 - 15:30 A. Niedźwiecka, *invited lecture:*

Nucleic acids degradation by proteins

15:30 - 15:45 R. Hołyst

Biologistics and physics of complex liquids at the nanoscale

15:45 - 16:00 J. Dąbrowski

Influence of stretching rate on the elasticity of a single α -helix

16:00 - 16:15 P. Grabiec

Micromechanical sensors for biochemical diagnostics

16:15 - 16:30 P. Śniadek
Veterinary microcytometr for parametric quality assessment of animal embryos

16:30 - 16:50 Coffee break

Session III: *Chairpersons: Anna Niedźwiecka, Mieczysław Poniewski*

16:50 - 17:20 J. Grzyb , *invited lecture:*
De novo designed iron-sulfur cluster proteins: redox characteristics

17:20 - 17:35 A. Ptak
Dynamic force spectroscopy: how to interpret the results?

17:35 - 17:50 S. Jakięła
The speed of droplets in square cross-section microchannels

17:50 - 18:05 D. Jasińska
Contact problem of a graphene membrane

18:05 - 18:20 I. Augustyniak
Concept of silicon-glass high dose energy radiation MEMS sensor

19:30 - 21:00 Get-together party (IPPT Main Hall)

Thursday, July 5, 2012

Session IV: *Chairpersons: Danek Elbaum, Maciej Pietrzyk*

09:00 - 09:30 K. Kempa , *invited lecture:*
Plasmonics of nanostructures

09:30 - 10:00 M. Giersig , *invited lecture:*
Electromagnetic waves interaction with various metallic nanomaterials

10:00 - 10:15 M. Wielgus
Sensitivity enhanced AFM nano-moiré method

10:15 - 10:30 O. Cybulski
Spontaneous ordering of droplets in a microfluidic loop

10:30 - 10:45 G. Maciejewski
Change of a crystal density caused by dislocations

10:45 - 11:00 A. Kordos
Some aspects of nanoflows in chromatographic columns

11:00 - 11:20 Coffee break

Session V: *Chairpersons: Maria Ekiel-Jeżewska, Anatol Jaworek*

11:20 - 11:50 S.M. Moghimi , *invited lecture:*
Immune-sensing of nanomedicines and triggered responses

11:50 - 12:05 A. Jaworek
Multinozzle electrospinning method for the production of nanofibrous filtration mats

12:05 - 12:20 A. Słowicka
Migration of microfibers entrained by Poiseuille flow in a microchannel

12:20 - 12:35 K. Adamiak

Corona assisted fabrication of liquid dielectric nanolayers

12:35 - 12:50 A. Młyniec
Chemomechanical modelling of the polymeric materials aging

12:50 - 14:30 Lunch

Session VI: Chairpersons: Teodor Gotszalk, Robert Holyst

14:30 - 15:00 A. L. Yarin, *invited lecture*:
Nanofibers, Mechanics of Forming and Some Applications (invited)

15:00 - 15:15 A. Blim
Modeling of pneumatic melt drawing of super-thin fibers in the Laval nozzle

15:30 - 15:45 M. L. Ekiel-Jeżewska
Diffusion, sedimentation, and rheology of concentrated suspensions of core-shell particles

15:45 - 16:00 K. Mizerski
Aggregation of spherical particles in shear flow

16:00 - 16:15 K. Zembrzycki
Analysis of wall effect on the process of diffusion of nanoparticles in a microchannel

16:20 - 16:40 Coffee break

16:40 - 18:00 Poster session (Main Hall)

- 1) A. Baranowska-Korczyc
Sensoric properties of ZnO and ZnO/ZnS core/shell nanofibers
- 2) K. Błaszczuk
Microfluidic device with contactless conductivity detection
- 3) J. Bytnar
How to select appropriate input parameters MD simulations of water nanoflows?
- 4) M. Chudy
Heating element for application in the microdevice dedicated to cell culture
- 5) P. Domagalski
Measurement techniques of optical microrheology
- 6) F. Dutka
Online in time content control of the trapped microdroplet in a microfluidic chip
- 7) M. Dziubiński
Phase fraction during two-phase liquid-liquid flow in microchannel
- 8) I. Grabowska-Jadach
Microfluidic system for cell migration and interaction studies
- 9) A. Górską
Investigation of CHIT/HEP polyelectrolyte multilayers by optical spectroscopy and microscopy
- 10) J. Hoffman
Carbon nanotubes synthesis by the Nd:YAG laser ablation process
- 11) E. Jędrych
Cytotoxicity tests of anticancer drugs in the microfluidic system
- 12) G. Jurczak
Influence of crystal defects on electromechanical properties of a nanostructures

- 13) D. Kałuża
Studies of ion transfer processes in microfluidic system
- 14) I. Kamińska
Optimization of bio-sensor based ZnAl₂O₄ spinel nanoparticles co-doped with lanthanides prepared by aerosol synthesis
- 15) D. Kołbuk
Investigations of polycaprolactone/gelatine blends in terms of their miscibility
- 16) P. Korczyk
Microfluidic traps for precise operations on droplets
- 17) K. Kośla
Preparation and tribological characterization of the organosilanes on aluminum surface
- 18) A. Kubit
Influence of ceramic nanofillers on static strength of adhesive joints subjected to peel
- 19) J. Mikołajczyk
Temperature variability during friction for composition base oil SN-150 - exploitational preparation Mind M
- 20) G. Mityurich
Photoacoustic diagnostics of dense layers of carbon absorbing nanotubes using Bessel light beams
- 21) P. Nakielski
Experimental study of drug release system based on electrospun nanofibers
- 22) M. Nawrot
3D two-photon photolithography as a rapid fabrication technique in microscale
- 23) K. Owodź
Structural and luminescent properties of the ZrO₂/CNTs composites
- 24) P. Prokaryn
Electrochemical processes for microelectrodes fabrication
- 25) A. Sierakowski
Piezoresistive cantilever for characterization of micro and nanostructures
- 26) B. Sikora
Fluorescence resonance energy transfer between ZnO/MgO nanoparticles and organic dye for biological and medicine application
- 27) Sobczyk
Synthesis of microporous TiO₂ film in microplasma generated by dielectric barrier discharge
- 28) J. Sowiński
Velocity and void fraction distribution in two phase flow in minichannel
- 29) W. Stępniewski
Incorporation of d-electronic anions in anodic aluminum oxide
- 30) An-Bang Wang
Discovering the missing transport mechanism inside the valveless micropump
- 31) R. Wojnar
Collagen structure: geometry and physics
- 32) K. Żukowski
Automated, flow microsystem for determination of glucose concentration in aqueous solutions
- 33) G. Żyła
Viscosity of Yttrium Oxide (Y₂O₃) and Magnesium-Aluminum spinel (MgAl₂O₄) nanopowder suspensions in ethyl alcohol

19:00 - 22:00 Conference dinner („Lolek” pub)

Friday, July 6, 2012**Session VII:****Chairpersons: Marek Dziubiński, Zbigniew Peradzyński**

- 09:00 - 09:30 A. Drukier, *invited lecture*:
Use of of Magnetic nano-technology in Life Science applications, including Low Magnetic Field MRI
- 09:30 - 09:45 P. Pieczywek
Development of the numerical model of the plant tissue using Finite Element Method
- 09:45 - 10:00 A. Myłyk
Dynamics of multi-particle systems falling gravitationally in a viscous fluid close to a vertical wall
- 10:00 - 10:15 T. Gotszalk
Actuation of deflection of micromechanical devices-control and measurements
- 10:15 - 10:30 G. Małozieć
Measurement setup for characterization of nanomechanical transducers
- 10:30 - 10:50 Coffee break

Session VIII:**Chairpersons: Andrzej Drukier, Zbigniew Walenta**

- 10:50 - 11:20 P. Garstecki, *invited lecture*:
Automated droplet microfluidics for biochemistry and microbiology
- 11:20 - 11:35 M. Maździarz
Modified RGL potential for FCC metals
- 11:35 - 11:50 K. Perzyński
Numerical model of nanoindentation test for multilayer metallic-ceramic coatings
- 11:50 - 12:05 M. Pietrzyk
Cellular Automata model of phase transformations in DP steels
- 12:05 - 12:20 Z. Walenta
Structure of shock waves in dense gases and liquids - Molecular Dynamics simulation
- 12:20 - 12:35 Z. Peradzyński
Modeling calcium concentration waves in biological cells
- 12:30 - 13:30 Lunch

CePT JOINED SESSION

Nano-biomaterials, Modeling and Visualization in Biomechanics

12:30 - 13:30 CePT Registration

Meeting of the Steering Committee

13:30 - 13:45 Opening address : **T. Pałko, A. Nowicki**

13:45 - 14:00 IPPT main targets : **T.A. Kowalewski**

CePT Seminar: Invited lectures #1

Chairpersons: Paweł Sajkiewicz, Tomasz Lipniacki

14:00 - 14:30 Seyed M. Moghimi (Copenhagen University)

Translational Nanomedicine

14:30 - 15:00 Andrzej Drukier (BioTraces Inc. and George Mason University, Fairfax, Va., USA)

Applications of Magnetic Meso-technology in Cardiology

15:00 - 15:30 Erhan Piskin (Biyomedtek, Ankara)

Tissue Engineering Strategies for Bone and Cartilage Repair

15:30 - 16:00 Marek Kimmel (Rice University, Huston, TX)

Modeling the NF- κ B Signaling Pathway and its Neighbors: An International Collaborative Effort

16:00 - 16:20 Coffee break

CePT Seminar: Invited lectures #2

Chairpersons: Paweł Sajkiewicz, Tomasz Lipniacki

16:20 - 16:50 Piero Tortoli (University of Florence)

Electronics and Ultrasound Research: A Perfect Couple

16:50 - 17:20 Eyal Zussman (Technion, Haifa)

Biohybrid Materials by Electrospinning of Polymer Microtubes

17:20 - 17:50 Alexander L. Yarin (University of Illinois at Chicago)

Nanotubes: Forming and Medical Applications

17:50 - 18:20 Anna Kucaba-Piętal (Rzeszow University of Technology)

Blood. Rheology and Modeling.

18:20 - 18:30 Closing discussion

18:30 - 20:00 CePT Posters discussion, Open Buffet

- All lectures take place in the Aula (Second Floor of IPPT PAN)
- 25minutes are allocated for the invited talks, 10 minutes for the contributed, followed by 5 minutes discussions.
- KKNM2012 posters should be fixed on Thursday morning and removed not later than Friday morning.