



## **PRELIMINARY PROGRAM**

**20 November 2014, Thursday**  
*Institute of Mechanics-BAS, hall 200*

**9:30 – 10:00**

**Registration**

**10:00 – 10:20**

**Opening Session**

Welcome address from Prof. DSci. PhD V. Kavarjnikov – Director of the  
Institute of Mechanics, Bulgarian Academy of Sciences

Welcome address from Prof. DSci. PhD S. Markov – Biomathematics  
Section at the Union of Bulgarian Mathematicians

**10:20 – 11:40**

**Plenary lectures**

Chairman: S. Nikolov

**S. Markov**

On the mathematical modelling of batch fermentation processes using  
reaction schemes and verification methods

**S. Stoytchev, R. Collins**

Biomechanics of glaucoma: factors influencing the intraocular pressure

**11:40 – 13:30**

**Break**

**13:30 – 16:20**

**Session “Biomechanics and gait control”**

Chairmen: D. Chakarov, I. Iotov

13:30 – 13:50

**R. Raikova, J. Celichowski**

Which can be the errors when a muscle is modeled as a complex of  
motor units?

13:50 – 14:10

**R. Raikova, D. Lochynski, D. Kaczmarek, H. Aladjov**

Experimental investigation of human elbow flexions in the sagittal  
plane with different speeds

14:10 – 14:30

**R. Antonova, S. Karastanev, P. Kiriazov**

Gait control of humans with assistive devices

**14:30 – 15:00**

**Coffee break**

**BULGARIAN SOCIETY OF BIOMECHANICS  
INSTITUTE OF MECHANICS, BAS**

Days of Biomechanics 2014, Sofia, 20.11-21.11.2014



**15:00 – 16:20      International Society of Biomechanics Young Investigator Award  
Named to Academician Georgi Brankov**

Chairman: S. Stoytchev

- 15:00 – 15:20      **D. Despotova**, P. Kiriazov, G. Nikolova  
Efficient control learning in sport and rehabilitation
- 15:20 - 15:40      **I. Ivanov**, N. Antonova  
Rheological and electrical characteristics of RBC suspensions after  
treatment with different types of polymeric nanoparticles solutions of  
poly(acrylic)acid
- 15:40 – 16:00      V. Mamatarkova, **M. Tsenov**  
Dynamics of *Acidithiobacillus ferrooxidans* JCM3863 biofilm  
formation on two different inert carriers
- 16:00 – 16:20      **M. Tsveov**, I. Veneva, D. Chakarov, D. Trifonov  
Structure and design of an active orthosis of human body

**21 November 2014, Friday**  
*Institute of Mechanics-BAS, hall 200*

**10:00 – 11:40      Session “Computer Methods in Biomechanics”**

Chairmen: S. Nikolov, D. Chakarov

- 10:00 – 10:20      **N. Antonova, X. Dong, I. Velcheva, E. Kaliviotis, P. Tosheva**  
Study of the blood flow in the common carotid artery bifurcation
- 10:20 – 10:40      **Z. Arakchiyski**  
Mathematical model for estimating of external mechanical work in step  
test
- 10:40 - 11:00      **I. Georgiev, N. Nikolov, E. Nikolova**  
Computational modeling of blood flow dynamics in brain aneurysms
- 11:00 – 11:20      **Ю.И. Няшин**  
Развитие биомеханической модели "Виртуальный  
физиологический человек"
- 11:20 – 11:40      **В.А. Лохов**  
Управление напряжениями и деформациями в задачах  
биомеханики

**11:40 – 12:30      Break**

**12:30 – 13:50      Session “Cellular and Molecular Biomechanics”**

Chairmen: R. Raikova, P. Kiriazov

- 12:30 – 12:50      **M. Kuklik, M. Tothova, V. Helešic, I. Marik**  
Osteogenesis imperfecta – mutagenesis and biomechanical material  
tissue properties

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- 12:50 – 13:10      **S. Nikolov, J. Vera, O. Wolkenhauer**  
Complex dynamics of a colorectal cancer model
- 13:10 – 13:30      **R. Blagoeva, A. Nedev, V. Michailova**  
A study of indomethacin release from polymersome nanoparticles solution under the presence of ethanol
- 13:30 – 13:50      **N. Zh. Bunzarova, N. C. Pesheva, J. G. Brankov**  
Traffic jams on chains with a shortcut of arbitrary length (in the framework of TASEP - a model of biological transport)
- 13:50 – 14:20**      **Coffee break**
- 14:20 – 15:20**      **Session “Rheology of Biological Tissues and Fluids”**  
Chairman: N. Antonova
- 14:20 – 14:40      **E. Petrova, P. Zlateva**  
Estimation of oxidation rates and oxidation degrees at adaptation of bacterial strain *Acidithiobacillus ferrooxidans* JCM 3863 to 21 g/L ferrous ions
- 14:40 – 15:00      **M. Kirilova-Doneva, D. Pashkouleva, V. Kavardzhikov, S. Sopotenski, G. Petrova, N. Gerasimov**  
Mechanical behavior of explanted hernia meshes
- 15:00 – 15:20      **I. Edisonov, S. Ranchev**  
Prognosis, monitoring and prevention of the risk of postoperative infectious
- 15:30**      **Closing Session “Discussion about the future of the conferences Days of biomechanics”**