

# 4<sup>TH</sup> EUROSUMMER SCHOOL ON BIORHEOLOGY & SYMPOSIUM ON MICRO- AND NANOMECHANICS AND MECHANOBIOLOGY OF CELLS, TISSUES AND SYSTEMS

## Conference Report I

VARNA, BULGARIA  
AUGUST 29 – SEPTEMBER 2, 2012

The 4<sup>th</sup> Eurosummer School on Biorheology & Symposium on Micro and Nanomechanics and Mechanobiology of Cells, Tissues and Systems was held in the International Home of Scientists “Frederick Joliot-Curie” at St. Constantine and Elena Resort in Varna, Bulgaria from August 29 to September 2, 2012 (<http://www.biorheo2012.bsb-bg.eu>). This meeting was the fourth, organized by the Bulgarian Society of Biorheology in cooperation with the European Society for Clinical Hemorheology and Microcirculation (E.S.C.H.M.) and Co-Organizer the Institute of Mechanics to the Bulgarian Academy of Sciences. The aim of the meeting was to get closer clinical, applied and fundamental biorheological, micro and nanomechanical and mechanobiological studies, promising new therapeutical developments and to focus researchers on the influence of the mechanical forces on cells, tissues and biological systems as well as instrumentation development. The meeting aimed to ensure continuity of the previous Eurosummer Schools on Biorheology, held in 2003 and 2006 in Varna and in 2009 in Borovetz, Bulgaria and to strengthen the international collaboration and contacts in this field. Last but not least the meeting aimed to encourage students, postgraduate students and young researchers in their studies too. The meeting was important for the future investigations and collaboration in this area preparing the next 17<sup>th</sup> meeting of the E.S.C.H.M. which will be held in Pecs, Hungary in 2013.

More than 40 participants from 9 countries (Argentina, Bulgaria, Belarus, Germany, Hungary, Poland, Portugal, Russia and UK) gathered in the beautiful St Constantine and Helena resort near Varna. The 42 presentations scheduled (12 lectures, 13 communications and 17 posters) reflect the breadth of interests in this field. The Scientific program of the 4<sup>th</sup> Eurosummer School on Biorheology & Symposium on Micro and Nanomechanics and Mechanobiology of Cells, Tissues and Systems included plenary lectures, sessions, oral communications and posters. They were published in a Book of abstracts and were available during the meeting.

Twelve plenary lectures were given by the well-known scientists in the field. M. Rampling (London) presented “The History of Haemorheology – a British Perspective”. B. Grzegorzewski (Bydgoszcz, Poland) read “Sedimentation velocity of red blood cell aggregates in diluted suspensions”. E. Kaliviotis (London, UK) presented a

lecture on “New insights into the time-dependent behaviour of blood viscosity”, “Biosignal acquisition, analysis and interpretation. “Biorheological application” was delivered by Bibiana Riquelme from the National University of Rosario, Argentina, Sv. Jovtchev from the Medical University in Sofia presented a lecture on “Red blood cell aggregation – a study with the zeta sedimentation approach”. Eugeny Roitman (Moscow, Russia) read a lecture on “Hemorheology, Hemostasis and Microcirculation as a single system”. E. Konstantinova (Minsk, Belarus) delivered a lecture on: “Parameters of hemorheology, microcirculation state and oxygen transfer to tissues in patients with different types of cardiovascular diseases”. The lecture on “Methods in Hemorheology – from theory to clinical practice” of N. Antonova (Sofia, Bulgaria) was presented too at the meeting. A lecture on “The in vivo effects of the drug diacetylmorphine /heroin/ on blood cell cytobiology, hematometric indices and hemorheological parameters in chronic heroin addicts” was read by E. Zvetkova (Sofia Bulgaria). Carlota Saldanha (Lisbon, Portugal) delivered a lecture on “Nitric Oxide as a Hemorheological Factor”. Y. Nyashin (Perm, Russia) read a lecture on “Human dentofacial system as an element of European megaproject “Virtual physiological human””.

Other well-known researchers in the field of biorheology as Norbert Nemeth from Hungary presented a lecture on “Some technical concerns and measuring experiences in experimental hemorheology: possibilities and boundaries, relations and counterpoints” and I. Velcheva from the

Figure 1:  
Participants in the 4<sup>th</sup> Eurosummer School on Biorheology & Symposium in Varna.



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Medical University in Sofia presented their recent scientific achievements on "Cerebral blood flow imaging: relation to blood rheology". Five sessions were organized: "Hemorheological disturbances in different pathologies", "New approaches for quantification of microrheological phenomena", "Cell interaction and adhesion", "Mechanical characteristics and modeling of tissues and systems" and a poster session.

The scientific program included also and a Young scientists' competition for the best scientific work. Students, PhD students and young researchers from Belarus, Bulgaria and Russia participated in it. After a comprehensive review and discussion E. Drozd from the Heat and Mass Transfer Institute of National Academy of Sciences of Belarus, Minsk, Belarus was nominated for her work on "Evaluation of the local elasticity modulus of biological cells on the basis of the shells theory" (E. Drozd, G.I. Mikhasev, S.A. Chizhik). Maria Lin and Marina Gafarova from Lomonosov Moscow State University, Moscow, Russia and PhD students A. Alexandrova and V. Kosto-

va from the Institute of Mechanics to the Bulgarian Academy of Sciences were nominated with diplomas.

The participants delivered their presentations in the atmosphere of fruitful scientific discussion. They found the meeting convincing and rewarding and St Constantine and Elena resort provided excellent conditions for an extensive exchange of views and personal contacts. The participants relaxed during the excursion to the Botanical Garden in Balchik and enjoyed the Exhibition of thracian treasures in the Archaeological Museum and the Classical Music Concert "Music under the stars" – "Fortissimo Fest" in the Summer theater in Varna. The presented lectures and communications are prepared to be published in the next issues of J. Series on Biomechanics (Volume 27 (2012), Issue 1–2).

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## Conference Report II

### THIRD INTERNATIONAL CONFERENCE ON NATURAL POLYMERS (ICNP 2012)

MAHATMA GANDHI UNIVERSITY, KOTTAYAM, INDIA  
OCTOBER 26 – 28, 2012

The Centre for Nanoscience and Nanotechnology, Mahatma Gandhi University, Kottayam, Kerala; India and Beijing University of Chemical Technology, China have jointly conducted the Third International Conference on Natural Polymers (ICNP 2012) at Mahatma Gandhi University, from October 26–28, 2012. Honourable Vice Chancellor of Mahatma Gandhi University Prof. Rajan Gurukkal inaugurated the three days Conference. About 220 delegates (both foreign and Indian) participated this conference and presented their research works. There were three plenary talks, 142 invited talks and 81 poster presentations.

The main goal of the Conference was to establish a strong collaboration between industry and academia and the conference has made a nice platform for efficient transfer of knowledge from

research institutions to industry. This conference comprised of sessions like agro waste, natural fibers and its applications, biopolymers, bio-composites, rheology and processing of natural polymers, bio-fuel, biomedical applications, bio-nanocomposites, bio-plastics, characterization, chitosan polymers, composites, electro spinning, gels, medical applications, membranes, molecular imprinted polymers, nanocomposites, natural fibre, natural polymers/ biopolymers, plasma processing, polymer composites, polymer for environment, proteins, radiation processing and sensors.

The three days series of lectures commenced with the plenary talk of Dr. James Jacob, (Director, Rubber Research Institute of India) on the "Climate Change, Ecological Concerns and Natural Rubber Cultivation in India". There are various lectures on

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