

Laboratory for Mechanics of Advanced Bulk Nanomaterials for Innovative Engineering Applications under supervision of Professor Ruslan Valiev is realized at Saint Petersburg State University. The project is supported by the grant 14.B25.31.0017 (Contract of June 28th, 2013) from the Government of the Russian Federation.
All reports are invited.

28 Universitetskiy pr.,
198504 Peterhof, Saint Petersburg, Russia

E-mail: nano.spbu@gmail.com
www.nanomat.spbu.ru

PROGRAM

May 30

Session «Investigation and Development of UFG Materials»

- 10:00-10:10** Welcome Address
Ruslan Z. Valiev (Saint Petersburg State University, Ufa State Aviation Technological University)
- 10:10-10:40** New Trends in Processing Metals by Severe Plastic Deformation
Terence G. Langdon (University of Southampton, UK)
- 10:40-11:10** UFG Materials Produced by SPD: Multifunctional Properties
Ruslan Z. Valiev (Saint Petersburg State University, Ufa State Aviation Technological University)
- 11:10-12:10** Coffee Break, Poster Session
- 12:10-12:40** Experimental Investigation of the Influence of Nanoscaled Particles and GB Segregations on the Thermal Stability of UFG Al Alloys
Xavier Sauvage (University of Rouen, France)
- 12:40-13:10** Giant Straining by HPT to Produce UFG Materials
Kaveh Edalati (Kyushu University, Japan)
- 13:10-13:30** Grain Boundary Impact on Mechanical and Electrical Properties of UFG Al
Tatiana S. Orlova (Saint-Petersburg National Research University of Information Technologies, Mechanics and Optics)
- 13:30-15:00** Lunch

- 15:00-15:20** Superior Strength of Ultrafine-Grained Al and Fe-Based Alloys Provided by Grain Boundary Segregations
Nariman A. Enikeev (Saint Petersburg State University, Ufa State Aviation Technological University)
- 15:20-15:40** Grain Refinement by Friction Stir Processing
Sergey Yu. Mironov (Saint Petersburg State University, Tohoku University, Japan)
- 15:40-16:00** Effects of Solutes on Strength and Stability of Nanotwinned UFG Metals
Alexander G. Sheinerman (Saint Petersburg State University, Institute of Problems of Mechanical Engineering of Russian Academy of Sciences)
- 16:00-16:20** Solid Particle Erosion of Ultrafine-Grained Materials
Nikita A. Kazarinov (Saint Petersburg State University)
- 16:20-17:00** General Discussion

POSTER SESSION

1. UFG Structures and Mechanical Properties of Two Phase Al-Zn Alloys
Elena V. Bobruk, X. Sauvage, R.Z. Valiev (Saint Petersburg State University, Ufa State Aviation Technological University)
2. Strengthening Mechanisms and Grain Refinement in Commercial-Purity Titanium Subjected Equal-Channel Angular Pressing
Grigory S. Dyakonov (Ufa State Aviation Technological University)
3. Microstructure, Strength, Electrical Conductivity and Heat Resistance of an Al-Mg-Zr Alloy After ECAP-Conform and Cold Drawing
Maxim Yu. Murashkin, A.E. Medvedev, V.U. Kazykhanov, G.I. Raab, I.A. Ovid'ko, R.Z. Valiev (Saint Petersburg State University, Ufa State Aviation Technological University)
4. The Nanostructured TiNi Alloys Obtained by SPD for Medical Applications
Dmitry V. Gunderov, A.A. Churakova, E.A. Prokofiev, A.V. Lukyanov, R.Z. Valiev (Saint Petersburg State University, Ufa State Aviation Technological University)
5. The Influence of Microstructure on Functional Properties of Al-0.4Zr Alloy Deformed by High Pressure Torsion
Aidar M. Mavlyutov (Saint-Petersburg National Research University of Information Technologies, Mechanics and Optics)
6. The Strength of Submicrocrystalline Aluminum Alloys at a Wide Range of Strain Rates
Anastasia N. Petrova, I.G. Brodova, S.V. Razorenov, O.A. Plekhov, O.B. Naimark (M.N. Mikheev Institute of Metal Physics of the Ural Branch of the Russian Academy of Sciences)

7. Computer Model of Ultra-Fine Grains Formation in Metals and Alloys Under Shock Compression
Egor A. Rzhavtsev, M.Yu. Gutkin (Saint-Petersburg National Research University of Information Technologies, Mechanics and Optics)
8. Physical and Mechanical Properties of Cu-2Be Alloy Processed by HPT
Alfia Ya. Nigmatullina, I.V. Lomakin, M. Castillo-Rodriguez, A.S. Bondarenko, I.N. Sabirov (Saint Petersburg State University)
9. Influence SPD on Fatigue Behaviour of UFG and Nanostructured Ti-6Al-4V Alloy
Farid A. Gadzhiev, Andrey G. Stotskiy, I.V. Lomakin, A.R. Arutyunyan, R.R. Valiev, M.Yu. Murashkin (Saint Petersburg State University)
10. Investigation of the Mechanical Properties of UFG Titanium Alloy VT6 with a Protective Coating (Ti-V)N
Yulia M. Modina, I.P. Semenova, R.R. Valiev, A.V. Polyakov
11. Microstructure Evolution of Titanium Alloy VT8M-1 with Globular-Lamellar Structure During Deformation in Temperature Range of 650–800°C
Yulia F. Grishina, G.S. Dyakonov, I.P. Semenova, I.A. Melemchuk

May 31

Session «Biomaterials»

- 10:00-10:05** Opening of Session
- 10:05-10:35** Degradable Metallic Biomaterials
Yufeng Zheng (Peking University, China)
- 10:35-10:55** Surface Modification of Biomedical Ti Alloys
Yan Cheng (Peking University, China)
- 10:55-11:15** Electrochemical Impedance Spectroscopy of PEO Coatings on UFG Magnesium Alloy Mg-1Ca
Evgeny V. Parfenov (Ufa State Aviation Technological University)
- 11:15-11:35** TiNi Shape Memory Foams Produced by Self-Propagating High-Temperature Synthesis
Natalya N. Resnina, S. Belyaev, A. Voronkov (Saint Petersburg State University)
- 11:35-12:00** Coffee Break
- 12:00-12:20** Development of UFG NiTi Alloys by ECAP-Conform for Medical Application
Egor A. Prokofiev (Saint Petersburg State University)
- 12:20-12:40** Impact Toughness of UFG Ti Grade 4 for Medical Applications
Alexander V. Polyakov (Saint Petersburg State University, Ufa State Aviation Technological University)
- 12:40-13:00** Structure and Mechanical Properties of the UFG Magnesium Alloys

*Olga B. Kulyasova (Saint Petersburg State University,
Ufa State Aviation Technological University)*

13:00-14:30 Lunch

14:30-14:50 Modification of Ultrafine-Grained Titanium by
Chemical Etching and Atomic Layer Deposition to
Produce Bioactive Implant Surfaces
*Denis V. Nazarov, Elena G. Zemtsova (Saint
Petersburg State University)*

14:50-15:10 Improvement of the Mechanical and Biomedical
Properties of Implants via the Production of
Nanocomposite Based on Nanostructured Titanium
Matrix and Bioactive Nanocoating
*Andrey Yu. Arbenin, Elena G. Zemtsova, Pavel E.
Morozov (Saint Petersburg State University)*

15:10-16:00 Excursion to the Institute of Chemistry and the
Resource Center

16:00-16:30 Excursion to the Laboratory for Mechanics of
Advanced Bulk Nanomaterials

16:30-18:00 Discussion of Joint Project and Publications

Conference Dinner

June 1

**Round Table Discussion with Vice-Rector of Saint
Petersburg State University**

Presentations:

- Bulk Nanostructured Materials: Innovation Potential
Ruslan Z. Valiev (Saint Petersburg State University, Ufa State Aviation Technological University)
- Techniques for Writing Papers for Good Archival Journals
Terence G. Langdon (University of Southampton, UK)
- New Biomaterials for the Medicine of the Future
Yufeng Zheng (Peking University, China)
- Atomic Microscopy and Design of New (Nano)Materials
Xavier Sauvage (University of Rouen, France)

Public debates

NOTES

