



Alexander von Humboldt

Stiftung/Foundation

**TECHNOLOGIES OF THE 21st CENTURY:
BIOLOGICAL, PHYSICAL, INFORMATIONAL
AND SOCIAL ASPECTS**

**2-nd St.-Petersburg
HUMBOLDT-KOLLEG CONFERENCE**

St.-Petersburg, Russia
October 7 – 9, 2008

P R O G R A M

We would like to invite you to take part in The 2nd St.-Petersburg Humboldt-Kolleg Conference
«Technologies of the 21st Century: Biological, Physical, Informational and Social
Aspects»
(October 7–9, 2008, St.-Petersburg, Russia).

This is an occasion to refresh our scientific collaborations with St.-Petersburg scientists and colleagues in Germany: in 2009 we will commemorate the 150th anniversary of Alexander von Humboldt. One year later, we will celebrate the establishment of the first Humboldt Foundation in 1860. Germany will celebrate the 20-th birthday of the fall of the wall in 2009 and one year later its reunification.

During discussions and the conference we are pleased to celebrate a 50-th jubilee of city partnership
(since 1957) between Hamburg and St.-Petersburg.

The Conference will take part in Pavlov Institute of Physiology, the Russian Academy
of Sciences (St.-Petersburg, 6 Makarova Nab., Conference Hall).

P R O G R A M

October 7, 2008, Tuesday

- 09:00–10:00 Registration of participants of the Conference (Conference-hall of Pavlov Institute of Physiology)
- 10:00–10:40 Official opening of the Humboldt-Kolleg Conference in Pavlov Institute of Physiology of Russian Academy of Sciences.
- 10:40–14:30 Session 1 Technologies of the 21st Century: Biological Aspects
- 15:30–18:10 Session 2 Technologies of the 21st Century: Biological Aspects

October 8, 2008, Wednesday

- 10:00–13:30 Session 3 Technologies of the 21st Century: Physical and Technological Aspects
- 14:30–17:00 Session 4 Technologies of the 21st Century: Physical and Technological Aspects
- 17:30–18:30 Round-Table
Discussion on the topic:
«Science in Russia and in Germany – History of Cooperation» – free discussion

October 9, 2008, Thursday

- 10:00–13:00 Session 5 Technologies of the 21st Century: Physical and Technological Aspects
- 14:00–17:20 Session 6 Technologies of the 21st Century: Social, Informational and Liberal aspects
- 18:00 Meeting of members of St.-Petersburg club of Alexander von Humboldt Foundation.
Elections of the president and the vice-president of the club

Poster session will take place during October 7–9, 2008 in the Hall of the Institute.

October 7, Tuesday

- 09:00 – 10:00 Registration of participants of the Conference (Conference-hall of Pavlov Institute of Physiology)
- 10:00 – 10:40 Official Opening of the Humboldt-Kolleg Conference in Pavlov Institute of Physiology of Russian Academy of Sciences.
Director of Pavlov Institute of Physiology of Russian Academy of Sciences – Corresponding Member of the Russian Academy of Sciences Professor **D.P. Dvoretzky**
- Consul of the Federal Republic of Germany – Mister **Peter Schaller**
- Director of Moscow DFG Office – Dr. **Alice Rajewsky**

Session 1 Technologies of the 21st Century: Biological Aspects

Chairpersons – Prof. **Zatsepina O.**, Prof. **Woody G.**, Prof. **Krylov B.**

- 10:40 – 11:10 **Woody G.** (Department of Psychiatry School of Medicine University of Pennsylvania, and the Treatment Research Institute Philadelphia, Pennsylvania, USA)
«Addiction and Its Treatment: Much Progress More to Do»
- 11:10 – 11:30 **Zatsepina O.** (Shemyakin & Ovchinnikov Institute of Bioorganic Chemistry, Moscow, Russia)
«Nucleolar proteins as targets of pharmaceutical drugs and toxic elements in human cells in vitro»
- 11:30 – 12:00 **Haasen C.** (Hamburg University, Hamburg, Germany)
«Evidenced based treatment of opioid dependent patients: trend towards diversification»
- 12:00 – 13:20 **Coffee break and POSTERS discussion**
- 13:20 – 13:40 **Malashichev E.** (St.-Petersburg State University)
«Long-term fate tracing of cell populations in living embryos using transgenic animals»
- 13:40 – 14:00 **Malashicheva A.** (Institute of Cytology RAS)
«Lentivirus as a tool for lineage-specific gene manipulations»
- 14:00 – 14:30 **Krupitsky E.^{1,2}, Zvartau E.¹, Egorova V.¹, Masalov D.³, Tsoi M.¹, Burakov A.³, N. Bushara N.¹, Romanova T.³, Verbitskaya E.¹, Slavina T.³, Woody G.⁴** (¹St.-Petersburg State Pavlov Medical University, Russia, ²St.-Petersburg Bekhterev Research Psychoneurological Institute, Russia, ³Leningrad Regional Center of Addictions, ⁴University of Pennsylvania, Department of Psychiatry, Philadelphia, USA)
«A double-blind, placebo controlled randomized clinical trial of long acting implantable formulation of naltrexone (prodetoxone) for heroin dependence: results of interim analysis»
- 14:30 – 15:30 **Lunch**

Session 2
Technologies of the 21st Century: Biological Aspects

Chairmen – Prof. Haasen C. , Prof. Krupitsky E., Prof. Zvartau E.

- 15:30 – 15:50 **Krylov B.** (Pavlov Institute of Physiology of RAS, St.-Petersburg, Russia)
«New approaches for treatment of pathological pain»
- 15:50 – 16:10 **Rogachevskiy I., Shchelych T.** (Pavlov Institute of Physiology of RAS, St.-Petersburg, Russia)
«The putative mechanism of ligand-receptor binding of gamma-pyridone derivatives»
- 16:10 – 16:30 **Lopatina E., Pennijanen V., Tsyrlin V.** (Pavlov Institute of Physiology of RAS, Federal state Institution «V.A.Almazov Centre of blood, heart and endocrinology of Rosmedtechnologies», St.-Petersburg, Russia)
«Pharmacological modulation of non-pumping function of sodium pump»
- 16:30 – 16:50 **Coffee break and POSTERS discussion**
- 16:50 – 17:10 **Plakhova V., Podzorova S.** (Pavlov Institute of Physiology of RAS, St.-Petersburg, Russia)
«Effects of pyridones on sensory neuron membrane: patch-clamp study»
- 17:10 – 17:30 **Thane K.** (Hamburg University, Hamburg, Germany)
«Effects of harm reduction measures: How has drug use in public changed since the introduction of drug consumption rooms?»
- 17:30 – 17:50 **Tsetlin V.** (Shemyakin-Ovchinnikov Institute of Bioorganic Chemistry, RAS, Moscow)
«Nicotinic and other Cys-loop receptors»
- 17:50 – 18:10 **Gurtovenko A.** (Institute of Macromolecular Compounds, Russian Academy of Sciences, Computational Biophysics Laboratory, Institute of Pharmaceutical Innovation, University of Bradford UK)
«Computer Modelling of Biological Membranes»

POSTERS

Anashkina E., Markovec A., Masin L. (St-Petersburg State University of Technology and Design, Russia) «Mathematical modeling of dynamics of mechanisms of transportation of a fabric of sewing machines at the account of change of thickness of materials during grinding»

Barygina V., Zatsepina O. (Shemyakin Ovchinnikov Institute of Bioorganic Chemistry RAN, Moscow, Russia) «The fate of human wild-type and mutant fibrillar in living HeLa cells following exposure to HgCl₂»

Ivanov I. (Farma Gene company) «Development of complex gene-therapy medication for reparation of wide spectrum of tissue damages»

Karetsky A., Lopatina E.V., Tsyrlin V. (St.-Petersburg Research Institute of Phtisiopulmonology, Pavlov Institute of physiology RAS, Russia) «Investigation of beta1 adrenoblockers effects on the growth of retina tissue explants»

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Karymova E., Katina I. (Pavlov Institute of Physiology, Saint-Petersburg, Russia) «Possible mechanisms of nociceptive signals coding: role of slow sodium channels»

Kikin A. (St.-Petersburg State University of Technology and Design) «Synthesis of six bar path generators»

Kipenko A., Penniyaynen V. (St.-Petersburg State Medical Academy named after I. I. Mechnikov, Pavlov Institute of Physiology, Saint-Petersburg, Russia) «Role of ouabain in specific tissue growth regulation»

Lobov G., Pan'kova M. (Pavlov Institute of Physiology, Saint-Petersburg, Russia) «SNP-induced relaxation in lymphatic vessels of bovine mesentery»

Ostrovsky A. (St.-Petersburg State University, Department of Invertebrate Zoology, Russia) «New findings of extraembryonic nutrition and placental analogues in the phylum of aquatic colonial organisms (*Bryozoa*)»

Patkul A. (Staatliche Universität St.-Petersburg, St.-Petersburg, Russland) «Das Problem des Verhältnisses zwischen der Wissenschaft und der Technik in der phänomenologischen Philosophie»

Polyakov Yu., Korotkov A., Volkova I., Zhurkovich I., Lopatina E., Krylov B. (Pavlov Institute of physiology RAS, Institute for human brain research RAS, Russia) «New non-opioid synthetic analgesic: results of investigations»

Popov A., Popov M. (Baltic State Technical University, St.-Petersburg, Russia) «The robust planning in the calibration model»

Rudenko J., Bigdai E., Kilimnik V., Samoilov V. (Pavlov Institute of Physiology, Saint-Petersburg, Russia) «Living tissues fluorimetry in medical nanobiotechnological studies»

Semenova V. (Department of Africa, MAE Russian Academy of Sciences) «South-eastern Ethiopia: Christian enclaves among Muslim Oromo»

Shelykh I. (St.-Petersburg State Polytechnical University, Russia and Science Institute, University of Iceland) «Spin-optonics: manipulation of the polarization of emission at nano-scale»

Trifonov P. (St.-Petersburg State Polytechnic University, Russia) «Finding the interpolation polynomial for list decoding of Reed-Solomon codes»

Tsimokha A.¹, Zaykova J.¹, Gauze L.², Kulichkova V.¹ (¹Institute of Cytology RAS, St.-Petersburg, Russia, ²Kol'tsov Institute of Developmental Biology RAS, Moscow, Russia) «Reprogramming of proteasomes in K562 cells undergoing apoptosis»

Usov A. (St.-Petersburg State University of Technology and Design) «Modelling of surfaces of rigid low-stretched lists».

Vislobokov A. I., Ignatov Yu. D., Mel'nikov K. N., Borisova V. A. (Pavlov State Medical University, Saint-Petersburg, Russia) «The membrane tropic effects of cardiac glycosides»

Zharskaya O., Zatsepina O. (Shemyakin-Ovchinnikov Institute of Bioorganic Chemistry, Russian Academy of Sciences) «Inhibition of CDK1 induces premature assembly of nucleolar precursors in metaphase of mitosis»

Poster session will take place in the Hall of the Institute

Session 3

Technologies of the 21st Century: Physical and Technological Aspects

Chairmen – Prof. Pisarev R., Prof. Vexler M., Prof. Amusia A.

- 10:00 – 10:30 **Vexler M.** (A.F. Ioffe Physical-Technical Institute RAS, St.-Petersburg, Russia, TU Braunschweig, Germany)
«Simulation of electron and hole tunneling transport through the high-k insulator layers and dielectric stacks in MIS devices»
- 10:30 – 10:50 **Sokolov I., Bryushinin M.** (A.F. Ioffe Physical-Technical Institute of RAS, St.-Petersburg, Russia)
«Space-and-time current spectroscopy of wide-gap semiconductors and nanostructured materials»
- 10:50 – 11:10 **Glazov A.** (A.F.Ioffe Physical-Technical Institute of RAS, Russia)
«Photoacoustic characterization and imaging of near-surface mechanical stresses in solids»
- 11:10 – 11:30 **Ledentsov N.** (A.F. Ioffe Physical-Technical Institute of RAS, Russia, VI Systems GmbH, Berlin, Germany)
«High speed data communications: energy concerns and nanotechnology solutions»
- 11:30 – 12:00 **Coffee break**
- 12:00 – 12:20 **Amusia M.** (A.F. Ioffe Physical-Technical Institute, St.-Petersburg, Russia and J. Racah Institute of Physics, Hebrew University, Jerusalem, Israel)
«Energy and Fuel – traditional and Alternative sources»
- 12:20 – 12:40 **Shabaev V.** (St.-Petersburg State University Institute of Physics)
«Quantum electrodynamics of heavy ions and atoms»
- 12:40 – 13:00 **Maximov M.** (A.F. Ioffe Physical-Technical Institute of RAS, Russia)
«Recent achievements in the field of quantum dot lasers»
- 13:00 – 13:20 **Elizarov A., Tupitsyn I.** (A.F. Ioffe FTI of RAS, Russia)
«Calculation by plane wave born approximations of electron-impact ionization of atoms»
- 13:20 – 13:30 **Zadkov V. and Zhdanov D.** (Faculty of Physics and International Laser Centre M.V.Lomonosov Moscow State University)
«Laser-assisted absolute asymmetric synthesis from an isotropic racemic mixture of chiral molecules at room temperatures»
- 13:30 – 14:30 **Lunch**

Session 4

Technologies of the 21st Century: Physical and Technological Aspects

Chairmen – Prof. Cherepkov N., Prof.Kornev N., Prof. Ledentsov N.

- 14:30 – 14:50 **Kornev N.** (Institute of Technical Thermodynamics)
«Microstructures of scalar turbulent fields»
- 14:50 – 15:10 **Uzdin V., Bessarab P., Jonsson H.** (St.-Petersburg State University, Russia)
«Transition state theory in magnetism. Application to the hydrogen storage problem»
- 15:10 – 15:30 **Cherepkov N.** (State University of Aerospace, Russia)
«Coincidence experiments in photoionization of diatomic molecules»
- 15:30 – 16:00 **Coffee break**
- 16:00 – 16:20 **Drichko N.** (A.F. Ioffe Physical-Technical Institute RAS)
«Molecular superconductors: chemistry meets physics»
- 16:20 – 16:40 **Parshin D.** (State Technical University, Russia)
«Fractals in a modern natural science - as a part of our culture»
- 16:40 – 17:00 **Timoshkin A.** (St.-Petersburg State University, Russia)
«Donor-acceptor complexes of noble gases»
- 17:30–19:00 **Round-Table**
Discussion on the topic:
«Science in Russia and in Germany – History of Cooperation» – free discussion
Rodionov A. - «Robert Genin (1884-1943) Russian-German painter»
Annenkova E.A., Golikov Yu.P. - «Princen von Oldenburg in Russland»

Session 5

Technologies of the 21st Century: Physical and Technological aspects

Chairmen – **Prof. Blekhman I., Prof. Fedorenko S.**

- 10:00 – 10:20 **Fedorenko S.** (St.-Petersburg State Polytechnic University, Russia)
«A new look at the finite field Fourier transform»
- 10:20 – 10:40 **Utkin L.** (St.-Petersburg Forest Technical Academy, St.-Petersburg, Russia)
«The imprecise Bayesian models of software quality»
- 10:40 – 11:00 **Veniaminov A.** (St.-Petersburg State University of Information Technologies, Mechanics and Optics, Russia)
«Holographic grating relaxation studies for polymer science and optoinformatics»
- 11:00 – 11:20 **Vershik A.** (Mathematical Institute of Russian Academy of Sciences, St.-Petersburg State University, Russia)
«Asymptotic theory of the random permutations and its applications»
- 11:20 – 11:40 **Coffee break**
- 11:40 – 12:00 **Zaitsev A.** (St.-Petersburg Department of Steklov Mathematical Institute, Russia)
«Estimates of the rate of approximation in the multidimensional invariance principle»
- 12:00 – 12:20 **Grachova E.** (St.-Petersburg State University, Department of Chemistry, Russia)
«Mixed-metal complexes design: using asymmetrical ligands to create linked cluster systems “transition metal – group 13 metals».
- 12:20 – 12:40 **Pozdnyakov A.** (Institute for Problems in Mechanical Engineering, Russia)
«Thermal and mechanical decomposition of linear and star shaped macromolecules with a fullerene core»
- 12:40 – 13:00 **Lebedev M.** (A.F. Ioffe Physical-Technical Institute of RAS, Center of Nanoheterostructure Physics, Russia)
«Role of adsorbate solvation and reactivity in GaAs(100) surface passivation at semiconductor/electrolyte interface»
- 13:00 – 14:00 **Lunch**

Session 6

Technologies of the 21st Century: Social, Informational and Liberal aspects

Chairmen – – **Prof. Mazhuga V., Prof. Nikitina T., Prof. Razeev D.**

- 14:00 – 14:20 **Nikitina T.** (St.-Petersburg University of Economics and Finance, Russia)
«Safety of banking system»
- 14:20 – 14:40 **Shangin A.** (St.-Petersburg University of Economics and Finance, Russia)
«Electronic money – next stage of payment system evaluation»
- 14:40 - 15:00 **Pavlinova O.** (Commercial Bank «Financial capital», Saint-Petersburg, Russia)
«The problems of introducing in Russia the fundamental principles of bank

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supervision»

- 15:00 – 15:20 **Krom M.** (European University at St.-Petersburg , St.-Petersburg, Russia)
«Patronage and clientele in early modern Russia: A comparative study in European context»
- 15:20 – 15:40 **Raseev D.** (St.-Petersburg State University, Russia)
«Das Ge-stell. Vom Wesen der Technik im XXI. Jahrhundert».
- 15:40 -16:00 **Coffee break**
- 16:00 – 16:20 **Mazhuga V.** (Institute of History , St.-Petersburg, Russia)
«Reconstructing the new fragment of Pliny the Elder' «De dubio sermone»
- 16:20 – 16:40 **Fedorova N.** (Centre for Cross-Cultural Projects on Social Order and Safety, Russia)
«The Construction of Deviance and Social Risks of Technology Development»
- 16:40 – 17:00 **Soboleva E.** (Peter the Great Museum of Anthropology and Ethnography (Kunstkamera) RAS)
«Globalization and society: new paradigms of museums' policy»
- 17:00 – 17:20 **Ikhsanov N.** (Pulkovo Observatory, Department of Astrophysics, RAS Russia)
«Astronomy in the 21st Century: macro *versus* micro scales»
- 18:00 **Meeting of members of St.-Petersburg club of Alexander von Humboldt Foundation. Elections of the president and the vice-president of the club**