



TOMSK
POLYTECHNIC
UNIVERSITY



XIIth China-Russia-Belarus Workshop PERSPECTIVE PLASMA TECHNOLOGIES 2019

Minsk, Belarus, 03–05 October, 2019

www.inp.bsu.by/ppt2019

Scientific Program

Locations:

BSU: Rectorate building, 5A Babruyskaya str.

RCI BSU: Republican Confucius Institute of Sinology at Belarusian State University, 11 Revolyutsionnaya str.

INP BSU: Institute for Nuclear Problems of Belarusian State University, 11 Babruyskaya str.

Restaurant «**Brussels**»: 32 Revolyutsionnaya str.

Restaurant «**Staroye Ruslo**»: 7 Ulyanovskaya str.

October 3, Thursday

11:00–13:00 Meeting on the sidelines (*Location: BSU*)

Chairman – Academician Oleg Ivashkevich, BSU, Minsk

11:00 Agreement signing ceremony between BIAM and BSU, BIAM and INP BSU

11:00 Meeting at the lobby of Hotel 'Minsk'

11:00–13:00 Registration (*Location: RCI BSU*)

13:00 Lunch (*Location: restaurant «Brussels»*)

14:00–14:30 Opening Ceremony (*Location: RCI BSU*)

14:30–16:00 Plenary section (*Location: RCI BSU*)

Chairman – Professor Vladimir Uglov, BSU, Minsk

14:30 Invited talk: **Hongbin Ding, Y. Wang and J.L. Shi**, Diagnosis on Non-Equilibrium Plasmas using Laser Thomson Scattering Approach

15:00 Invited talk: **Gennady Remnev, A. Baranova, A. Byuharkin, M. Zhuravlev, E. Kibler, V. Lopatin, I. Pyatkov, V. Ryzhkov**, Electron Accelerators and Collective Ion Acceleration for Medical Applications

15:30 Coffee

16:00–17:30 Plenary section (*Location: RCI BSU*)

Chairman – Professor Gennady Remnev, TPU, Tomsk

16:00 Invited talk: **Ma Shengli, Li Ping**, China-Belarus High-Technology Aerospace Center for Research and Development

16:30 Invited talk: **Oleg Penyazkov, Valiantsin Astashynski**, Development of Plasma Physics and Plasma Technologies in A.V. Luikov Heat and Mass Transfer Institute of National Academy of Sciences of Belarus

17:00 Invited talk: **Vladimir Uglov, N.N. Cherenda, A.K. Kuleshov, V.I. Shymanski, S.V. Zlotski**, Novel Plasma Technologies Development in Solid State Physics Department of Belarusian State University

17:30–18:30 Poster section (*Location: RCI BSU*)

18:30 Welcome party (*Location: restaurant «Brussels»*)

October 4, Friday

08:45 Meeting at the lobby of Hotel 'Minsk'

09:00–10:30 Plenary section (*Location: RCI BSU*)

Chairman – Professor Junling Chen, IPP CAS, Hefei

09:00 Invited talk: **Jian Jiao, Jinhua Yang, Hu Liu**, Fabrication of Silicon Carbide Reinforced Silicon Carbide Composites by Melt Infiltration Processing

09:30 Oral talk: **Vladimir Denisov, N.N. Koval**, Works on the Generation of a Gas-Metal Plasma and its use for Surface Modification of Materials and Products, Performed in the Laboratory of Beam-plasma Surface Engineering of HCEI SB RAS

09:45 Oral talk: **Gennady Remnev, Vladislav Tarbokov**, Technological Area for Complex Hardening of Carbide Tools

10:00 Oral talk: **Chengyan Ren, Duo Hu, Fei Kong, Cheng Zhang, Tao Shao**, Effect of Surface Modification on Trap Distribution and Vacuum Surface Flashover of Polymeric Materials

10:15 Oral talk: **M.N. Bosyakov, V.G. Zalesski, I.L. Pobol, A.N. Majseenka**, Automated Equipment for Plasma Thermochemical Treatment of Metal Parts

10:30 Coffee

11:00–12:30 Plenary section (*Location: RCI BSU*)

Chairman – Professor Hongbin Ding, DUT, Dalian

11:00 Invited talk: **Rui Ding, H. Xie, F. Ding, L. Wang, J.L. Chen, D.L. Rudakov, H.Q. Wang, H.Y. Guo**, Modeling of Plasma-Wall Interaction in Tokamak Experiments with High-Z Materials

11:30 Invited talk: **Laizhong Cai, Xiaoxiao Zeng, Jianbao Wang, Jiupeng Song, Binyou Yan, Zhe Chen**, Fabrication and Test of the Interlayer of a New First Wall Structure For DEMO

12:00 Oral talk: **Chaofeng Sang, Rui Ding, Liang Wang, Zhenhou Wang, Dezhen Wang**, Modeling of the Plasma with Tungsten Divertor Interactions on EAST

12:15 Oral talk: **Cong Li, L. Sun, Z. Hu, D. Zhao, J. Liu, R. Hai, C. Feng, F. Ding, G.-N Luo, J. Hu, L. Wang, Y. Liang, H. Ding**, In Situ Laser-Induced Breakdown Spectroscopy (LIBS) Study on Plasma-Wall Interaction in EAST Tokamak

12:30 Meetings on the sidelines

13:00 Lunch (*Location: restaurant «Brussels»*)

14:00–16:00 Plenary section (*Location: RCI BSU*)

Chairman – Professor Yue Liu, DUT, Dalian

14:00 Invited talk: **Xiubo Tian, Houpu Wu, Chunzhi Gong**, Discharge and Deposition of Novel Bipolar High Power Impulse Magnetron Sputtering

14:30 Oral talk: **Q.Y. Nie, Z.L. Zhang**, The Modulation Strategy of Atmospheric Pressure Dielectric Barrier Discharge by Tailored Voltage Waveforms Excitation

14:45 Oral talk: **Chunzhi Gong, Yongjian Li, Xiubo Tian**, Effect of Auxiliary Enhanced Magnetic Field on Microstructure and Mechanical Behaviors of Multilayered CrN/AlCrN Coatings

15:00 Oral talk: **Ivan Egorov, A.V. Poloskov, A.A. Isemberlinova, G.E. Remnev**, Pulsed Electron Beam Irradiation for Agricultural Applications

15:15 Oral talk: **Yurii Sharkeyev, K. Prosolov, O. Belyavskaya, A. Bolat-ool, J. Rau**, RF Magnetron Glancing Angle Deposition of Thin Calcium Phosphate Coatings on Titanium for Medical Applications

15:30 Oral talk: **Chunlei Feng, Z.W Wang, H. Ding**, The Transport Behaviour Study of OH Radical by LIF in Atmospheric Pressure Surface Micro-Discharge

15:45 Oral talk: **J. Hu, X.B. Tian**, Evaluation of Discharge Behavior and Surface Properties of Ta-C Films by Modified Vacuum Arc Evaporation

16:00 Coffee

16:30–17:00 Plenary section (*Location: RCI BSU*)

Chairman – Professor Vladimir Uglov, BSU, Minsk

16:30 Invited talk: **Sergey Maksimenko**, Institute for Nuclear Problems of the Belarusian State University: Contribution to Materials Research

17:00 Discussions

17:30 Coffee and snacks

19:00 Social event (*Location: Bolshoi Theatre of Belarus, 1, Parizhskaya Kommuna sq., Minsk*)

October 5, Saturday

08:45 Meeting at the lobby of Hotel 'Minsk'

09:00–11:00 Plenary section (*Location: RCI BSU*)

Chairman – Professor Sergey Maksimenko, INP BSU, Minsk

09:00 Invited talk: **Miao Qu, Sha Yan**, Application prospect of Compressed Plasma Flows in transient high heat flux testing for PFM

09:30 Oral talk: **Efim Oks**, Some Issues of the Development of Electron-beam and Ion-Plasma Equipment for Practical Use

09:45 Oral talk: **Ran Hai, X.C. Li, H.B. Ding**, Comparative Study on Self-Absorption of Laser-Induced Plasma in Different Environments

10:00 Oral talk: **Evgeniy Petrenko, A.S. Yudin**, Formation of multichannel breakdown in electric discharge drilling technologies

10:15 Oral talk: **A.A. Bukharkin, S.M. Martemyanov**, Low-grade Solid Fossil Fuels Electrophysical Conversion

10:30 Oral talk: **Xiaoyun Le**, The role of high power density for the irradiation of IPIB on solid targets

11:00 Coffee

11:30–12:30 Round table discussion (*Location: RCI BSU*)

12:30 Meetings on the sidelines

18:00 Conference dinner (*Location: restaurant «Staroye Ruslo», 7 Ulyanovskaya str., Minsk*)

List of posters:

1. **C. Cao, X. Huang, Z. Cao, X. Gao, C. Cui**, Experiments of Real-Time Siliconization during Discharge on Tokamak
2. **Y. Liu, Yu-E Hu**, Effect of Neutral Gas Temperature on Discharge Characteristics in Low Pressure Rf Argon Glow Discharges
3. **Cailong Fu, Qi Wang, Liying Sun, Ding Wu, Hongbin Ding**, Numerical Study of Tungsten Plasma Emission Spectra From the Low Charge State in The Laser Ablation Plasma
4. **Roman Sazonov, G. E. Remnev, I. S. Egorov, A. V. Poloskov, L.R. Merinova, G. E. Kholodnaya**, Development of Technology for the Oxidative Destruction of Hormonal and Hardly Oxidizable Organic Compounds
5. **Alexandra Baranova, Gennady Remnev**, Radiation technology for bio waste treatment
6. **Artem Yudin, N.K. Kapishnikov**, Mini-plant for destruction of reinforced concrete wastes
7. **Nikolay Rempe**, Equipment and technologies for coating metals by electron-beam surfacing in vacuum and gas with atmospheric pressure
8. **Yurii Ivanov, E.A. Petrikova, I.V. Lopatin, O.S. Tolkachev, M.E. Rygina**, Modifying of the eutectic silumin surface by the electron-ion-plasma method
9. **Anton Teresov, Yu.F. Ivanov, E.A. Petrikova, O.S. Tolkachev, D.A. Romanov**, Boration of high-chromium austenitic steel surface by electron-ion-plasma methods

10. **Li Guo, Jing Zhang, Dingxin Liu, Michael G. Kong**, Microbial Inactivation in Model Tissues Treated by Surface Discharge Plasma
11. **T.Z. Miao, M. Zhu, Y.B. Cao, P. Wu, Z.M. Song, G.S. Zhang, J. Sun**, Study on Anode Plasma Spectra with Strong Current High-Energy Electron Beam
12. **X.X. Zhu, W.B. Tan, X.Z. Li, J.C. Su, L.G. Zhang, Z.Y. Shen**, Studied the Effect of Plasma on High Power Microwave Transmission Channel in Ku Band
13. **Ihar Saladukhin**, China-Belarus: new prospect of educational and scientific cooperation. Founding of Joint Institute of the Belarusian State University and Dalian University of Technology