

Ministry of Education and Science of the Russian Federation
Russian Academy of Sciences
National Research Nuclear University «MEPhI»
Moscow State University
St. Petersburg State Polytechnic University
Moscow Aviation Institute
Yaroslavl branch of Institute of Physics and Technology RAS
Institute of Microelectronics Technology and High Purity Materials RAS
Moscow State Technical University

PROGRAM

THE XXIII INTERNATIONAL CONFERENCE ON

ION - SURFACE INTERACTIONS

(ISI-2017)

21 – 25 August 2017 г.

Moscow 2017

Sponsors of ISI - 2017:
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SCIENTIFIC SECTIONS

1. Sputtering, surface structure, desorption.
2. Ion scattering and propagation.
3. Emission of ions, electrons, photons and X-rays under ion-surface interaction.
4. Ion implantation and surface modification.
5. Ion-assisted processes in thin films and nanostructures.
6. Plasma-surface interaction - physics and technology.

Oral reports will be held in the conference hall from 21 to 25 August from 9⁰⁰ to 18⁰⁰. Invited talks will be allowed 25 minutes and additional 5 minutes for discussion. Oral contributions will be 15 minutes and additional 5 minutes for discussion.

The working time of poster sessions is from 18⁰⁰ to 20⁰⁰. Poster reports should be put on board 60 cm x 80 cm in the evening *before* the working day of the respective poster section. Poster stands will be marked with numbers corresponding to the numbers of the poster reports in this program.

Poster schedule:

21 August – sections 1, 2 and 3;

22 August – sections 4 and 5;

24 August – section 6.

8³⁰-9⁰⁰ – Breakfast, 13⁰⁰-14⁰⁰ – Lunch, 20⁰⁰-20³⁰ – Dinner.

21 August, Monday

PLENARY SESSION

Chairs: Yu. Ryzhov, V.Kurnaev

- 8³⁰-10⁰⁰ REGISTRATION OF THE PARTICIPANTS
- 10⁰⁰-10¹⁰ OPENING OF THE CONFERENCE
- 10¹⁵-10⁴⁰ **Peter Sigmund** (*University of Southern Denmark, Denmark*)
Stopping of slow ions revisited.
- 10⁴⁵-11¹⁰ **Kenji Kimura** (*Kyoto University, Japan*)
Molecular imaging using transmission secondary ion mass spectrometry.
- 11¹⁵-11³⁰ *Coffee break*
- 11³⁰-11⁵⁵ **Philippe Boduch** (*GANIL, France*)
Swift heavy ions, ices and astrophysics: irradiation of water ice sand complex organic molecules.
- 12⁰⁰-12²⁵ **Stefan Facsko** (*Helmholtz-Zentrum Dresden-Rossendorf, Germany*)
Ion beam-enabled CMOS-compatible manufacturing of sets operating at room temperature.
- 12³⁰-13⁰⁰ ***Taking a photo of the conference participants***
- 13⁰⁰-14⁰⁰ *Lunch*

21 August, Monday

Section 1. Sputtering, surface structure, desorption

Chairs: L. Begrambekov, Yu. Gasparyan

- 14⁰⁰-14²⁵ **Carsten Bundesmann** (*Leibniz-Institute of Surface Modification (IOM), Germany*)
Systematics in ion beam sputter deposition.
- 14³⁰-14⁵⁵ **Norito Ishikawa** (*Japan Atomic Energy Agency, Japan*)
Structure of hillocks at surface of ceramics irradiated with swift heavy ions.
- 15⁰⁰-15²⁵ **Hermann Rothard** (*CIMAP, France*)
Astrophysical silicates: contribution of ion induced sputtering to surface modification and exospheres of solar system objects.
- 15³⁰-15⁴⁵ *Tea break*
- 15⁴⁵-16¹⁰ **Reinhard Stadlmayr** (*Technische Universität Wien, Austria*)
Erosion of fusion relevant surfaces by using a quartz crystal microbalance.
- 16¹⁵-16⁴⁰ **Noriaki Toyoda** (*University of Hyogo, Japan*)
Atomic layer etching with gas cluster ion beams.
- 16⁴⁵-17⁰⁰ **S.N.Kapustin, V.I.Matveev.**
Peculiarities ion sputtering of fullerenes.
- 17⁰⁵-17²⁰ **I.I. Amirov, V.I. Bachurin, M.O. Izyumov, N.O. Shuvaev.**
The sputtering of silicon and silicon dioxide by low energy ions of dense nitrogen and argon plasma.
- 17²⁵-17⁵⁰ **M.V. Sorokin, A.S. El-Said, R.A. Wilhelm, R. Heller, S. Facsko, F. Aumayr.**
Structuring of the lithium fluoride surface by highly charged ions.
- 18⁰⁰-20⁰⁰ ***POSTERS, 1, 2 and 3 sections***
- 20⁰⁰-20³⁰ *Dinner*

22 August, Tuesday

Section 2. Ion scattering and propagation

Chairs: G.Kornich, V.Bachurin

- 9⁰⁰-9²⁵ **Srdjan Petrović** (*Vinča Institute of Nuclear Sciences, Serbia*)
Nuclear resonant ion-atom elastic reactions and the ion channeling effect: perspectives and applications.
- 9³⁰-9⁵⁵ **Károly Tőkési** (*Institute for Nuclear Research, Hungary*)
Guiding as a general consequence of the charged particle interaction with the inner surface of the insulator capillary.
- 10⁰⁰-10²⁵ **Eric Giglio** (*CIMAP, France*)
Capillaries as self-organized electrostatic lenses focus: charge relaxation after ion beam irradiation.
- 10³⁰-10⁵⁵ **P.Yu. Babenko, D.S. Meluzova, A.P. Solonitsyna, A.P. Shergin, A.N. Zinoviev.**
Rainbow effects in grazing scattering of atoms from crystal surface.
- 10⁵⁰-11⁰⁵ *Coffee break*
- 11⁰⁵-11²⁰ **K. Nordlund and F. Djurabekova.**
Systematic studies of ion channeling effects by simulated channeling maps.
- 11²⁵-11⁴⁰ **L. Begrambekov, A. Kaplevsky, A. Evsin, S. Dovganyuk, A. Zakharov.**
Hydrogen trapping into and release from tungsten covered by beryllium/aluminum oxide layer under plasma irradiation.
- 11⁴⁵-12⁰⁰ **I.K. Gainullin.**
Three-dimensional modeling of resonant charge transfer between ion beams and metallic surfaces.
- 12⁰⁵-12²⁰ **A.N. Zinoviev.**
Atomic interatomic potentials at high, medium and low collision energies.
- 12²⁵-12⁴⁰ **Yu.A. Belkova, N.V. Novikov, Ya.A. Teplova.**
Interrelation of processes leading to inelastic energy losses of ions.
- 12⁴⁵-13⁰⁰ **G.M. Philippov, V.A. Aleksandrov, I.V. Lysova, A.V. Stepanov.**
Wave and particle propagation through porous structures.
- 13⁰⁵-14⁰⁰ *Lunch*

22 August, Tuesday

Section 3. Emission of ions, electrons, photons and X-rays under ion-surface interaction

Chairs: V.Popok, O.Trushin

- 14⁰⁰-14²⁵ **DaeWon Moon** (*Daegu Gyeongbuk Institute of Science and Technology, Korea*)
Development of ion beam analysis technology from vacuum to ambient.
- 14³⁰-14⁵⁵ **Nico Klingner** (*Helmholtz-Zentrum Dresden-Rossendorf, Germany*)
SIMS on smallest scale.
- 15⁰⁰-15¹⁵ **I.A. Afanasieva, V.V. Bobkov, V.V. Gritsyna, Yu.E. Logachev, A.A. Skrypnik, I.I. Okseniuk, D.I. Shevchenko.**
On excited particles formation in crossed E×H fields.
- 15²⁰-15⁴⁵ **Lars Breuer** (*The Pennsylvania State University, USA*)
Mass spectrometry on sputtered neutral material from keV to GeV projectiles.
- 15⁵⁰-16⁰⁵ *Tea break*
- 16⁰⁵-16²⁰ **R.A. Wilhelm, J. Schwestka, E. Gruber, R. Heller, R. Kozubek, M. Schleberger, S. Facsko, F. Aumayr.**
Radiative and non-radiative de-excitation of slow highly charged ions transmitted through freestanding single layer graphene.
- 16²⁵-16⁴⁰ **Yu.V. Petrov, A.E. Anikyeva, O.F. Vyvenko.**
Features of secondary electron emission from thin insulating films under helium ion bombardment.
- 16⁴⁵-17⁰⁰ **R.A. Rymzhanov, N.A. Medvedev, A.E. Volkov.**
Excitation of the electronic system of subsurface layers of TiO₂ irradiated with swift heavy ions.
- 17⁰⁵-17²⁰ **O. Trushin, S. Simakin, S. Vasiliev.**
Depth profiling of magnetic tunneling junction using ION TOF.
- 17²⁵-17⁴⁰ **K.A. Tolpin, K.F. Minnebaev, V.E. Yurasova.**
Secondary emission of neutral and charged particles from intermetallic single-crystal.
- 17⁴⁵-18⁰⁰ **R. Mulyukov.**
Influence of nanostructuring on work function and ion-induced electron emission of metal.
- 18⁰⁵-20⁰⁰ ***POSTERS, 4 and 5 sections***
- 20⁰⁰-20³⁰ *Dinner*

23 August, Wednesday

Section 4. Ion implantation and surface modification

Chairs: A.Titov, A.Azarov

- 9⁰⁰-9²⁵ **Jani Kotakoski** (*University of Vienna, Austria*)
Low-energy ion beam manipulation of 2D materials - from implantation to amorphization.
- 9³⁰-9⁵⁵ **Flyura Djurabekova** (*Helsinki University, Finland*)
Improved radiation resistance in equiatomic multicomponent single phase alloys.
- 10⁰⁰-10²⁵ **A.B.Tolstogouzov** (*Ryazan State Radio Engineering University, Russia*)
Novel ion-beam sources based on advanced ion-conductive materials for analytical and technological application.
- 10³⁰-10⁴⁵ *Coffee break*
- 10⁴⁵-11¹⁰ **Katharina Lorenz** (*Universidade de Lisboa, Portugal*)
Europium doping of Ga₂O₃ by ion implantation.
- 11¹⁵-11⁴⁰ **K. Moshkunoy and A. Delcorte.**
Large binary clusters for gas cluster ion beams obtained in MD simulations.
- 11⁴⁵-12¹⁰ **Johan Malherbe** (*University of Pretoria, South Africa*)
Ion bombardment of glassy carbon.
- 12¹⁵-12³⁰ **D.V. Shyrokorad, G.V. Kornich, S.G. Buga.**
Formation of core-shell bimetal nanostructures under low energy argon cluster bombardment.
- 12³⁵-12⁵⁰ **S.A. Bedin, F.F. Makhin'ko, V.V. Ovchinnikov, N.N. Gerasimenko, D.L. Zagorskiy.**
Radiation stability nickel nanowires.
- 13⁰⁰-14⁰⁰ *Lunch*
- 14²⁰-19³⁰ *Excursions*
- 20⁰⁰-22⁰⁰ *Dinner*

24 August, Thursday

Section 4. Ion implantation and surface modification

Chairs: F. Djurabekova, P. Karaseov

- 9⁰⁰-9²⁵ **Marika Schleberger** (*University of Duisburg-Essen, Germany*)
Surface modification by ion-induced electronic excitations.
- 9³⁰-9⁵⁵ **Bengt Svensson** (*University of Oslo, Norway*)
Ion beam modification of wide bandgap semiconductors.
- 10⁰⁰-10¹⁵ **B.E. Umirzakov, Y.S. Ergashov.**
Composition, structure and electronic properties of nano-film system
SiO₂/Si/CoSi₂/Si(111).
- 10²⁰-10⁴⁰ **V.M. Mikoushkin, V.V. Brysgalov, S.Yu. Nikonov, A.P. Solonitsyna,
D.E. Marchenko.**
Formation of a p- layer on the GaAs-surface in its etching by Ar⁺ ions.
Effect of the Ar⁺ ion irradiation on the composition of the GaAs native
oxide layer.
- 10⁴⁵-11⁰⁰ *Coffee break*
- 11⁰⁰-11²⁵ **ChienHsu Chen, Nai-Hui Chen and Chien-Ping Lee.**
Magnetoresistance in GaMnAs prepared by Mn ion implantation and
helium ion beam induced epitaxial crystallization.
- 11³⁰-11⁴⁵ **A.M. Borisov, V.A. Kazakov, E.S. Mashkova, M.A. Ovchinnikov.**
Regularities of ion-stimulated thermal graphitization of diamond.
- 11⁵⁰-12⁰⁵ **E.I. Rau, A.A. Tatarintsev, E.Yu. Zykova, V.V. Khvostov,
I.P. Ivanenko, A.A. Haidarov.**
Comparison of charge kinetics of dielectrics subjected to preliminary
electron or ion irradiation.
- 12¹⁰-12²⁵ **L.E. Agureev, K.A. Anikin, A.A. Ashmarin, A.V. Vinogradov,
S.V. Savushkina, A.V. Apelfeld.**
Surface modification of aluminum composite by plasma action in
electrolyte.
- 12³⁰-12⁵⁵ **Ina Schubert** (*GSI Helmholtz Center, Germany*)
Metallic Nanostructures by Ion-Track Technology and Their Plasmonic
Applications
- 13⁰⁰-14⁰⁰ *Lunch*

24 August, Thursday

Section 5. Ion-assisted processes in thin films and nanostructures

Chairs: A.Pisarev, A.Borisov

- 14⁰⁰-14²⁵ **Christian Dufour** (*CIMAP, France*)
How can temperature drive nanoparticle transformation within composite systems submitted to swift heavy ion beams?
- 14³⁰-14⁵⁵ **Harriet Ahlgren** (*University of Nottingham, United Kingdom*)
Ion irradiation implantation of metal ions into single and double layer graphene.
- 15⁰⁰-15²⁵ **A.I. Titov, P.A. Karaseov, A.I. Struchkov, A. Kumar, R. Singh, D. Kanjilal.**
Electrical isolation of GaN by 200 MeV Ag ion irradiation.
- 15³⁰-15⁵⁵ **Janine Schwestka** (*Technische Universität Wien, Austria*)
Interaction of highly charged ions with single layer graphene.
- 16⁰⁰-16¹⁵ *Tea break*
- 16¹⁵-16⁴⁰ **Luca Repetto** (*Università di Genova, Italy*)
Stability of solid films under ion irradiation.
- 16⁴⁵-17⁰⁰ **S.V. Konstantinoy, F.F. Komarov, V.E. Strel'nitskij, V.V. Pilko.**
Influence of helium ions irradiation on structure, phase composition and tribomechanical properties of nanostructured TiCrN coatings.
- 17⁰⁵-17²⁰ **V.S. Sypchenko, Wang Cailun, N.N. Nikitenkov, T.I. Sigfusson, Yu.I. Tyurin.**
Influence of hydrocarbon atmosphere on the properties of aluminum oxide film on titan VT1-0.
- 17²⁵-17⁴⁰ **V.I. Zinenko, Yu.A. Agafonov, O.V. Kononenko, V.V. Saraykin.**
Graphene synthesis by cold recoil implantation of carbon atoms.
- 17⁴⁵-18⁰⁰ **S.B. Donaev, B.E. Umirzakov.**
Electronic structure and emission properties of W, Pd AND Pd-Ba, implanted by ions of Ba⁺.
- 18⁰⁰-20⁰⁰ ***POSTERS, 6 section***
- 20⁰⁰-22⁰⁰ *Conference dinner*

25 August, Friday

Section 6. Plasma-surface interaction - physics and technology

Chairs: V.Ivanov, V.Kurnaev

- 9⁰⁰-9²⁵ **Noriyasu Ohno** (*Nagoya University, Japan*)
Dynamic behavior of hydrogen isotope retention in tungsten during and after plasma exposure.
- 9³⁰-9⁵⁵ **Yury Gasparyan** (*National Research Nuclear University MEPhI, Russia*)
Hydrogen and helium retention in tungsten under ion irradiation.
- 10⁰⁰-10¹⁵ **G.G. Bondarenko, V.I. Kristya, D.O. Savichkin.**
Modeling of the effect of field electron emission from the cathode with a thin dielectric film on its effective secondary electron emission yield in gas discharge plasma.
- 10²⁰-10³⁵ **A.A. Ayrapetov, L.B. Begrambekov, S.S. Dovganuk, A.S. Kapleuski.**
Removal of deuterium implanted into graphite by consequent irradiation by ions of hydrogen plasma.
- 10⁴⁰-10⁵⁵ **V.V. Andreev, Yu.P. Pichugin.**
Interaction in the cell of dielectric barrier discharge in air at atmospheric pressure of microdischarges with rotating and immobile dielectrics.
- 11⁰⁰-11¹⁵ *Coffee break*
- 11¹⁵-11³⁰ **Yu.N. Devyatko, V.V. Novikov, O.V. Khomyakov.**
Formation of massive hydrides in the fuel cladding.
- 11³⁵-11⁵⁰ **D.V. Sidelev, V.P. Krivobokov, V.A. Grudin, S.V. Ydakov, V.O. Oskirko.**
Erosion of aluminum target in magnetron discharge plasma.
- 11⁵⁵-12¹⁰ **N.N. Cherenda, A.A. Malashevich, V.V. Uglov, V.M. Astashynski, A.M. Kuzmitski.**
Modification of structure, strength and corrosion properties of instrumental steel surface layer under the impact of compression plasma flows.
- 12¹⁵-13⁰⁰ **Conference discussion**
- 13⁰⁰-13²⁵ **Summary**
- 13³⁰-14³⁰ *Lunch*
- 14³⁰
and later **Departure of participants from Moscow**

POSTER REPORTS

21 August, Monday

Section 1. Sputtering, surface structure, desorption

1. **T.G.Avacheva, A.D.Maslov, A.P.Avachev.** The AFM images analysis of the surface structure of semiconductor materials by correlation methods.
2. **N.N.Andrianova, A.M.Borisov, V.A.Kazakov, E.S.Mashkova, M.A.Ovchinnikov, S.V.Savushkina.** Structural and morphological changes of carbon fiber surface under sputtering by noble gas ions.
3. **V.I.Bachurin, I.V.Guravlev, D.S.Kibalov, V.K.Smirnov.** The angle and energy dependencies of sputtering selectivity of silicon and silicon dioxide by nitrogen ions.
4. **A.D.Bakun, A.S.Gusev, N.I.Kargin, I.A.Matiushchenko, S.F.Timashev.** Analysis of influence of cluster-ion processing on optical glass ceramics surface condition by method of flicker-noise spectroscopy.
5. **O.S.Vasilyev, P.V.Borisyyuk, T.I.Kozlova, Yu.Yu.Lebedinskii.** Study of electron properties evolution of Ta and Mo nanocluster thin films formed with magnetron sputtering.
6. **N.V.Volkov, D.A.Safonov.** Sputtering of single crystals of silicon irradiated by ion beams of helium and argon with mean energy of 10 keV.
7. **G.N.Dudkin, V.M.Bystritsky, B.A.Nechaev, V.N.Padalko, E.B.Kashkarov, S.I.Kuznetsov.** Monitoring the target surface in the experimental investigation of the $d(d,n)$ ^3He reaction at ultralow collision energies.
8. **V.K.Egorov, E.V.Egorov, M.S.Afanas'ev.** Study of gold and vismuth pseudoepitaxial films on micaceous substrates.
9. **A.E.Ieshkin, S.E.Svyakhovskiy, V.S.Chernysh.** Fabrication of optically smooth surface on the cleavage of porous silicon by gas cluster ion irradiation.
10. **S.A.Krat, Yu.M.Gasparyan, Ya.A.Vasina, A.A.Pisarev.** Hydrogen co-deposition with metals in plasma discharge.
11. **N.V. Mamedov, V.A. Kurnaev, D.N. Sinelnikov, D.V. Kolodko, I. A. Sorokin.** LEIS analysis of the W surface during water vapor adsorption.
12. **K.S.Nazarov, R.Kh.Khisamov, Yu.M.Yumaguzin, R.R.Mulyukov.** Multiple-point surface formation on nanostructured nickel by ion-beam sputtering.
13. **A.V.Nazarov, V.S.Chernysh, K.Nordlund, F.Djurabekova, J.Zhao.** Anisotropic patterns of atoms sputtered from single crystals by gas cluster ions.
14. **A.V.Nazarov, V.S.Chernysh, K.Nordlund, F.Djurabekova, J.Zhao.** Molecular dynamics simulations of angular distributions of atoms sputtered by gas cluster ions.
15. **A.N.Pustovit.** Emission theory of amorphous materials sputtering. The dependence of the sputtering coefficient on the oblique incidence of a primary ion beam.
16. **A.N.Pustovit.** Emission theory of amorphous materials sputtering. Selfsputtering.
17. **A.V.Rumyantsev, N.I.Borgardt, R.L.Volkov, G.V.Chemarov.** Secondary sputtering of focused ion beam redeposited silicon.
18. **S.A. Ryabtsev, Yu.M. Gasparyan, O.V. Ogorodnikova, Z.R. Harutyunyan, A.A. Pisarev.** Deuterium re-emission and thermal desorption from iron and Eurofer.

19. **V.N.Samoilov, A.I.Musin.** Focusing effects for atoms sputtered from (001) Ni with energy and angular resolution.
20. **M.Skakov, T.Kulsartov, T.Tulenbergenov, I.A.Sokolov, B.Rahadilov, D.Ganovichev, Yu.Gordienko.** Research results of the experiments on gas emission from pre saturated samples conducted at plasma-beam installation.
21. **I.Sorokin, E.Marenkov, K.Nordlund, A.Eksaeva.** Angular distribution of W sputtered by low energy Ar.
22. **A.A.Sycheva, E.N.Voronina.** Molecular dynamics simulation of physical sputtering of nanoporous silicon-based materials with low energy argon.

Section 2. Ion scattering and propagation

1. **P.Yu.Babenko, A.P.Shergin, A.P.Solonitsyna, A.M.Deviatkov, A.N.Zinoviev.** Hydrogen ions reflection from the tokamak reactor first wall.
2. **D. Bulgadaryan, D.Sinelnikov, V.Kurnaev, D. Hwangbo, S.Kajita, N.Ohno,** Hydrogen ion reflection from tungsten fuzze
3. **S.S.Volkov, A.A.Aristarhova, Yu.E.Dmitrevsky, T.I.Kitaeva, S.V.Nikolin, N.L.Puzevitch, M.Yu.Timashev, A.B.Tolstogousov, V.V.Truchin.** Influence of surface potentials on ion-surface interaction.
4. **I.K.Gainullin, O.V.Poddelskaya.** Nanosystem size influence on features of electron exchange with negative ion.
5. **V.V.Evstifeev, N.V.Kostina.** Elastic energy loss under interaction of atomic particles.
6. **V.V.Evstifeev, N.V.Kostina.** The influence of crystal orientation on the recoil energy under interaction with the bombarding ions.
7. **A.N.Zinoviev.** Atom energy, electron screening, and screening corrections in the Rutherford backscattering spectrometry.
8. **Z.A.Isakhanov, B.E.Umirzakov, K.G.Eshboev.** Path of the ions Na^+ passing through thin copper films.
9. **V.P.Koshcheev, Yu.N.Shtanov, D.A.Morgun.** Rule of equal distribution of electronic and nuclear loss of energy of channeled particles.
10. **D.S.Meluzova, P.Yu.Babenko, A.P.Shergin, A.N.Zinoviev.** Using the rainbow scattering effect for obtaining the projectile-surface interaction potential.
11. **A.S.Sabirov.** Role of polarization forces in the channeling of ions in multi walled nanotubes.

Section 3. Emission of ions, electrons, photons and X-rays under ion-surface interaction

1. **O.L.Golubev, N.M.Blashenkov.** Determination of the critical ionization distance and ionization zone in the process of high temperature field evaporation of molybdenum.
2. **A.P.Zanina, L.G.Karyev, V.A.Fedorov.** Emission in ionic crystals under thermoelectric influence.
3. **V.A.Litvinov, I.I.Okseniuk, D.I.Shevchenko, V.V.Bobkov.** SIMS investigation of hydrogen interaction with the LaNi_5 alloy surface.
4. **S.E.Maksimov, N.Kh.Dzhemilev, S.F.Kovalenko, O.F.Tukfatullin, Sh.T.Khojiev, V.M.Rotstein.** Investigations of Y_n^+ and Y_nO_m^+ clusters sputtered by ion bombardment.

5. **I.E.Mitropolsky, V.V.Kuzma, V.S.Buksar.** Influence of nanoparticles of Ag on an ion-photon emission of NaCl when bombing K^+ .
6. **N.A.Nurmatov, I.X.Xamidjanov.** Investigation of photoemission of niobium surface implanted by low-energy hafnium ions.
7. **D.A.Safonov, A.S.Yashin, N.V.Volkov.** Title optimization of alloying parameters with Al, Fe, Mo films on the sample surface of Zr alloys under irradiation by beams of Ar ions.
8. **E.G.Soboleva, M.A.Kuznetsov, V.V.Litvinenko.** Process of radiation defects formation in indium phosphide.
9. **Yu.I.Tyurin, N.N.Nikitenkov, V.S.Sypchenko, Wang Yaoming, Zhang Hunzhu, L.I.Syemkina, T.I.Sigfusson.** Excitation of electronic states of nonmetallic surface by hydrogen atoms.
10. **R.Khisamov, K.Nazarov, Yu.Yumaguzin and R.Mulyukov.** Nanostructured materials as materials for cold cathodes of gas-discharge devices.

22 August, Tuesday

Section 4. Ion implantation and surface modification

1. **H.A.A.Abdelbagi, J.B.Malherbe, V.A.Skuratov, E.G.Njoroge, T.M.Mohlala, M.Mlambo, T.T.Hlatshwayo.** SHI irradiation enhanced diffusion of silver implanted into polycrystalline SiC.
2. **M.Y.A.Ismail, J.B.Malherbe, T.T.Hlatshwayo, E.G.Njoroge, O.S.Odudemowo, E.Wendler.** Investigating effect of heat treatment on the diffusion behaviour of xenon implanted in glassy carbon.
3. **Mahbub.F.Kenari, O.S.Odudemowo, J.M.Nel, T.T.Thulani, J.B.Malherbe, E.Wendler.** Diffusion of implanted europium in glassy carbon.
4. **P.Mazarov, L.Bruchhaus, S.Bauerdick, M.Kahl, A.Nadzeyka, R.Jede.** Focused ion beam device prototyping employing light and heavy ions.
5. **E.Njoroge, C.Theron, M.Mlambo, T.Hlatshwayo, V.Skuratov, J.Malherbe.** Modification of indium implanted glassy carbon by thermal annealing and SHI irradiation.
6. **O.S.Odudemowo, J.B.Malherbe, C.C.Theron, E.G.Njoroge and E.Wendler.** *In-situ* RBS studies of strontium implanted glassy carbon.
7. **V.V.Privezentsev, O.S.Zilova, A.V.Burmistrov, A.A.Batrakov, M.Yu.Presniakov.** Phase transformation in $^{64}Zn^+$ ions and thermal oxidized sapphire.
8. **A.A.Abduvayitov, Kh.Kh.Boltaev.** Study of composition and profile distribution of atoms on the semiconductor structure CdS-SnO₂-sial by the SIMS method.
9. **A.Akilbekov, A.Dauletbekova, N.Kirilkin, R.Zabels, M.Baizhumanov, M.Zdorovets.** Peculiarities of F_2 and F_3^+ centres luminescence in LiF crystals irradiated with 12 MeV ^{12}C .
10. **V.A.Anikin, A.M.Borisov, V.A.Kazakov, A.V.Kudrin, E.S.Mashkova, A.I.Morkovkin, M.A.Ovchinnikov, E.A.Pitirimova.** Effect of high-fluence ion irradiation on the structure and electrical properties of polycrystalline diamond.
11. **V.V.Bobkov, L.P.Tishchenko, R.I.Starovoitov, Yu.I.Kovtunenkov, Yu.E.Logachev, and L.A.Gamayunova, A.B.Tsapenko.** Sequential implantations of deuterium and helium ions into the composite structure with tungsten coating.

12. **E.A.Bogdanova, V.M.Skachkov, A.G.Shirokova, N.A.Sabirzyanov.** The interaction of hydroxyapatite (HAP) with different nature of surface area as an important aspect of surface engineering.
13. **A.Dauletbekova, A.Akilbekov, A.Kozlovskii, A.Alzhanova, M.Murzagaliev, F.Komarov, L.Vlasukova, M.Zdorovets.** Formation of ZnO nanocrystals in SiO₂/Si track templates.
14. **A.A.Dmitrievskiy, N.Yu.Efremova, D.G.Guseva, A.O.Zhigachev, V.V.Korenkov.** Influence of low-intensive beta-irradiation on effectiveness of silicon phase transformation Si-I – Si-II – Si-XII/Si-III/a-Si under indenter.
15. **A.E.Ieshkin, A.V.Danilov, M.Yu.Voronina, Yu.A.Ermakov, V.S.Chernysh.** Optimization of gas cluster ion source.
16. **S.A.Krivelevich, N.P.Pron.** Using of ion implantation for tristate transistors creation.
17. **M.A.Makhavikou, O.V.Milchanin, F.F.Komarov, E.Wendler, L.A.Vlasukova, I.N.Parkhomenko.** Creation of ZnSe nanoclusters in SiO₂ layers by hot ions implantation and with following annealing.
18. **A.S.Rysbaev, Zh.B.Khujaniyazov, I.R.Bekpulatov, Sh.A.Talipova, Z.R.Saidakhmedova.** Modification of the structure and surface properties of monocrystals of Si by high-dose implantation of Ba⁺ ions and alkaline elements.
19. **A.S.Rysbaev, Zh.B.Khujaniyazov, Z.R.Saidakhmedova, A.M.Rakhimov, D.M.Shukurova.** Electron energy loss spectra of ion- implanted Si.
20. **A.K.Tashatov, N.M.Mustafojeva, D.A.Normurodov, D.A.Tashmuhamedova.** Elastic reflected electrons spectroscopy of Mo implanted by barium ions.
21. **B.E.Umirzakov, S.B.Donaev, M.K.Ruzibaeva.** Influence of the implantation of oxygen ions on the composition and electronic properties of heterostructures CoSi₂/Si (111) films.
22. **A.G.Shirokova, E.A.Bogdanova, V.M.Skachkov, I.G.Grigorov, N.A.Sabirzyanov.** The role of scanning electron microscopy in the screening of highly porous honeycomb materials (HPHM) intended for implantology.
23. **Y.S.Ergashov, B.E.Umirzakov, B.D.Donaev.** Electronic structure of monocrystalline CaF₂ (111) with nanosize phases Ca.
24. **M.B.Yusupdjanova, A.N.Urakov, D.A.Tashmukhamedova.** Electron structure of MgO monocrystals with the nanophases Mg.
25. **S.P. Zimin, I.I. Amirov, E.S. Gorlachev, V.V. Naumov, E. Abramof, P.H.O. Rappl.** Features of the plasma nanostructuring of the Pb_{1-x}Sn_xTe film surface with the varied lead/tin ratio.

Section 5. Ion-assisted processes in thin films and nanostructures

1. **S.Biira, P.L.Crouse, T.T.Hlatshwayo, H.Bissett, M.Mlambo, J.B.Malherbe.** Time dependence of microstructural and morphological evolution of chemical vapour deposited ZrC layers.
2. **H.Niu, C.H.Chen, K.Srinivasu, B.R.Lin and Y.C.Yu.** Synthesis and characterization of Fe doped nanodiamond powders by Fe ion implantation method.
3. **V.V.Privezentsey, V.A.Skuratov, V.S.Kulikauskas, A.V.Makunin, S.V.Ksenich, E.A.Steinman, A.N.Tereshchenko.** Zn ion implanted Si modification by swift Xe ion irradiation.
4. **T.T.Thabethe, T.T.Hlatshwayo, E.G.Njoronge and N.B.Malherbe.** Investigation of swift heavy ions irradiated on W thin film deposited on 6H-SiC.

5. **V.P.Afanas'ev, G.S.Bocharov, A.V.Eletskii, A.S.Gryazev, P.S.Kaplya, M.Köppen, O.Yu.Ridzel.** Investigation of the annealing process of graphene oxide to obtain graphene based on the photoelectron energy spectra analysis.
6. **A.I.Vilenskii.** Tracks and track membranes.
7. **L.Vlasukova, F.Komarov, I.Parkhomenko, V.Yuvchenko, O.Milchanin, A.Mudryi, V.Zyvul'ko, A.Dauletbekova, A.Alzhanova, A.Akilbekov.** Photoluminescence and chemical reactivity of amorphous SiO₂ irradiated with high fluences of swift heavy ions.
8. **E.V.Duda, G.V.Kornich.** The unification of hyperdynamics and temperature-accelerated dynamics within combined calculating complex.
9. **A.S.Kondratieva, P.G.Bespalova, M.V.Mishin, A.L.Shakhmin, I.K.Boricheva, M.S.Tuzhilkin, I.E.Kolesnikov, K.V.Karabeshkin, P.A. Karaseov, A.I. Titov** Effect of molecular ion irradiation on morphology of Au thin film and silicon nanostructure morphology
10. **D.L.Zagorskiy, K.V.Frolov, S.Bedin, I.Doludenko, V.V.Artemov, M.A.Chuev, A.A.Lomov.** Two-component metal nanowires: track matrix based synthesis and investigation of structure and properties.
11. **I.P.Ivanenko, S.V.Krasnoshchekov, A.V.Pavlikov.** Study of molecular structures of carbon films condensed on metal substrates by pulse-plasma method.
12. **D.S.Korolev, A.N.Mikhaylov, A.I.Belov, A.A.Nikolskaya, V.I.Pavlenkov, S.N.Nagornykh, A.N.Tereschenko, E.A.Steinman, D.I.Tetelbaum.** Mechanism of temperature effect on dislocation-related photoluminescence of ion-implanted silicon.
13. **Yu.V.Martynenko, S.N.Korshunov, A.M.Lebedev, N.Yu.Svechnikov, I.D.Skorlupkin.** Structure modification of deposited carbon films by simultaneous electron irradiation.
14. **V.M.Mikoushkin, A.S.Kriukov, S.Yu.Nikonov, A.P.Solonitsyna, A.T.Dideykin, O.Yu.Vilkov.** Few-layer graphene hydrogenation by an H₂⁺ ion beam of the keV- energy range.
15. **S.A.Miskiewicz, F.F.Komarov, A.F.Komarov, V.N.Yuvchenko, G.M.Zayats, V.A.Bozhatkin.** Radiation resistance of integral MIS and bipolar silicon structures.
16. **A.D.Mokrushin, E.V.Egorov, V.A.Smirnov.** Proton conduction of grafene oxide and nafion films in field-effect transistor.
17. **V.V.Poplavsky, O.G.Bobrovich, A.V.Dorozhko.** Formation of active layers of electrocatalysts by ion beam assisted deposition of platinum and gadolinium on carbon fiber paper catalyst carriers.
18. **V.V.Poplavsky, V.G.Matys.** Physicochemical properties of electrocatalysts prepared by ion beam assisted deposition of platinum and gadolinium on carbon fiber paper catalyst carriers.
19. **I.V.Puzynin, T.P.Puzynina, I.G.Hristov, R.D.Hristova, Z.K.Tukhliev, Z.A.Sharipov.** The evolution of continuum-atomistic method to modelling interaction processes of heavy ions with metals.
20. **V.E.Pukha, N.N.Dremova, M.V.Maleyev, M.V.Mishin, A.L.Shakhmin, A.V.Arkipov, K.V.Krainov, A.I.Struchkov, A.I.Titov, P.A.Karaseov.** Target sputtering and carbon film deposition by C₆₀ ion beam of keV energy.
21. **R.Kh.Saydakhmedov, K.K.Kadirbekova, G.R.Saidakhmedova.** Composition and structure PVD coatings based of titanium carbide.

22. **N.A.Smolanov.** On the question of fractionality of microparticles from plasma flow of a vacuum arc-discharge.
23. **J.Sh.Sodikjanov, F.Ya.Xudaykulov, D.A.Tashmukhamedova.** Obtaining and researching of nanodimensional structures properties created in near surface area of the CaF₂.
24. **V.V.Sokhoreva, S.Chinsorig, E.B.Kashkarov, E.S.Kulyukina, S.I.Kuznetsov.** Formation of a track template during PETP irradiation by high-energy helium ions for the template synthesis of regular microstructures.
25. **A.V.Stepanov.** Simulation of ion motion in carbon nanotube with elastic wall and electronic subsystem perturbation taking into account: first principles calculation.
26. **A.K.Tashatov, N.M.Mustafoyeva, D.A.Tashmuhamedova, B.E.Umirzakov.** Determination of parameters of energy zones and constant lattices of metal silicides.
27. **V.V.Uglov, N.T.Kvasov, V.I.Shymanski.** Radiation and dynamical processes in nanostructured materials during irradiation with high energy and average energy ions.
28. **G.M.Filippov.** Passage of multicharged ions through the system of parallel thin films.
29. **V.G.Shengurov, S.A.Denisov, V.Y.Chalkov, D.V.Shengurov, M.V.Stepikhova.** Potential enhanced doping in sublimation molecular beam epitaxy of Si and SiGe.
30. **I.D.Yadgarov, V.G.Stelmakh, A.A.Dzhurakhalov.** Effect of graphene defects on deposition of hydrogen atoms.

24 August, Thursday

Section 6. Plasma-surface interaction - physics and technology

1. **V.K.Abgaryan, K.I.Kruglov.** The efficiency of RF power conversion into ion current in the radio-frequency ion sources.
2. **I.I.Amirov, A.S.Shumilov, M.O.Izyumov, L.A.Mazaletsky.** Self-formation of nanostructures on the surface of Si and SiO₂ in a two-stage etching process in plasma fluorine-containing gases.
3. **K.A.Anikin, A.M.Borisov, A.V.Zheltukhin, A.A.Zhukov, B.L.Krit, S.V.Savushkina, I.D.Fedichkin, A.V.Apelfeld.** The properties of thermal control coatings produced by plasma electrolytic method on aluminum alloy.
4. **V.N.Arustamov, K.B.Ashurov, I.Kh.Khudaykulov.** The influence of the magnetic field of cathode current on the movement of cathode spot vacuum arc.
5. **V.N.Arustamov, K.B.Ashurov, I.Kh.Khudaykulov.** Determination of the parameters for the formable plasma flow of a vacuum arc and distribution coatings.
6. **V.P.Afnas'ev, A.S.Gryazev, P.S.Kaplya, M.Köppen, O.Yu.Ridzel, N.Yu.Subbotin, P.Hansen.** Investigation of beryllium deuteride by electron spectroscopy.
7. **A.A.Batrakov, O.S.Zilova, G.V.Kachalin, A.A.Burmistrov, A.P.Lepekhov, Y.N.Andriyanova.** Sputtering of protective nano-layer coatings with different concentration carbon at analysis of glow discharge optical-emission spectroscopy.
8. **Yu.V.Borisyuk, V.V.Kozlova, D.V.Mozgrin, N.M.Oreshnikova, T.V.Stepanova, and A.A.Pisarev.** Pulsed abnormal glow discharge with hollow cathode for nitriding of internal cylindrical surfaces.

9. **I.Borodkina, D.Borodin, S.Brezinsek, I.V.Tsvetkov, V.A.Kurnaev, C.C.Klepper, A.Lasa, C.Guillemaut, P.Jacquet, M.F.Stamp, C.Giroud and JET Contributors.** Analytical expression for the sheath electric field for sputtering modeling at JET ILW experiments.
10. **E.N.Voronina, Yu.A.Mankelevich, T.V.Rakhimova.** Reactive mechanisms of F atoms interactions with SiCF₃ surface groups.
11. **G.P.Gololobov, A.N.Vlasov, M.V.Dubkov, M.A.Burobin, D.V.Suvorov, M.A.Serpova.** Electric explosion of metal in the impulse magnetic field for coatings.
12. **A.A.Goncharov, A.N.Yunda, A.I.Bazhin, I.V.Shelest, V.V.Buranich.** Comparative analysis of the effect of RF- and DC- magnetron sputtering parameters on the structure formation of tantalum diboride thin films.
13. **A.G.Gorobchuk.** Numerical modeling of plasma-chemical etching technologies.
14. **D.V.Grankin, A.I.Bazhin, V.P.Grankin.** Generation of high energy electrons in metal under the action of thermal atoms of hydrogen and deuterium from plasma.
15. **A.E.Evsin, L.B.Begrambekov, S.S.Dovganyuk, A.S.Kaplevsky.** Mitigation of ion irradiation-induced hydrogen desorption from titanium by protective coatings.
16. **E.B.Kashkarov, N.N.Nikitenkov, A.N.Sutygina, M.S.Syrтанov, S.A.Zakharchenko.** Influence of plasma immersion titanium ion implantation on hydrogen permeation into zirconium alloy E110.
17. **E.S.Kiseleva, N.N.Nikitenkov, V.S.Sypchenko.** The character of the formation of the Raman spectra of titanium dioxide films decreased by reactive magnetic sputtering.
18. **A.I.Kudyukin, E.N.Moos, A.T.Rott, N.B.Rybin, V.A.Stepanov.** Surface electrode modification by vacuum arc.
19. **S.E.Maksimov, N.R.Ashurov, M.I.Akhmedov, A.V.Gatvich, B.L.Oksengendler.** Features of ion-stimulated processes on perovskite fractal interfaces.
20. **L.S.Novikov, E.N.Voronina, V.N.Chernik, L.A.Zhilyakov and N.P.Chirskaya.** Changes in polyimide structure under sequential irradiation with low-energy protons and oxygen plasma.
21. **O.V.Ogorodnikova, C.Ruset, D.Dellasega, A.Pezzoli, M.Passoni, K.Sugiyama, Yu.Gasparyan, V.Efimov.** Correlation of deuterium retention with crystalline structure in dense and disordered tungsten coatings.
22. **T.D.Radjabov, A.I.Kamardin, A.A.Simonov, G.A.Khamraeva.** Ion-plasma deposition of tantalum and zirconium coatings and their oxidation.
23. **T.D.Radjabov, A.M.Nazarov, S.V Kovesnikov, Sh.Z.Kurbanbaev.** Antireflection coatings for solar cells with small thickness.
24. **B.K.Rakhadilov, M.K.Skakov, Zh.B.Sagdoldina, T.R.Tulenbergenovich.** Change the tungsten surface under irradiation by hydrogen plasma.
25. **S.V.Tomilin, V.N.Berghansky, A.N.Shaposhnikov, O.A.Tomilina.** Ion-plasma nitrogenation and carbonitration in the plasma of a glow HF-discharge.
26. **O.A.Tomilina, A.M.Fedorenko, S.V.Tomilin, V.N.Berzhansky, A.A.Fedorenko.** Relay-reduction mechanism of H⁺ cations reduction in near-cathode area at electrolysis of acid solutions.
27. **A.V.Fedotova, V.O.Dryakhlov, I.G.Shaikhiev, M.F.Shaekhov, E.Benova, I.G.Gafarov.** The effect of ion flow of a RF capacitive discharge on the characteristics of polysulfonamide membranes.

28. **V.N.Chernik, L.S.Novikov, L.A.Ziljakov.** Impact of oxygen plasma on indium tin oxide (ITO) coating.
29. **Zhang Le, N.N.Nikitenkov, V.S.Sypchenko, A.H.Sutygina, Ju.I.Tyurin, Yin Shanshan.** The effect of preliminary plasma-immersion ion implantation of titanium from arc discharge plasma on the hydrogen permeability of titanium nitride coating.
30. **V.I.Shymanski, V.V.Uglov, N.N.Cherenda, V.M.Astashynski, A.M.Kuzmitski.** Tungsten surface modification by dense compression plasma flows.
31. **M.N.Shipko, V.V.Korovushkin, M.A.Stepovich, E.G.Rozin.** The influence of the plasma corona discharge on Mn-Zn ferrite crystal structure.
32. **I.Borodaev, V.Zheltukhin, A.Shakhyrov.** Simulation of low energy treatment of polyethylene.
33. **A.Azanova, I.Borodaev, V.Zheltukhin, A.Shakhyrov.** Investigation of low pressure RF plasmas effect on knitted materials from natural cellulose.