



**International conference
ADVANCED MATERIALS AND
TECHNOLOGIES**

----- PROGRAM BOOK -----

21-23 OCTOBER 2015

Tbilisi, Georgia

ORGANIZING COMMITTEE

Guram Bokuchava—chairman (Georgia)

Klaus Thiessen (Germany), **Irakli Jordania** (Georgia), **Fernando Marquis** (USA), **Ucha Dzodzuashvili** (Georgia), **Milton Torikachvili** (USA), **Archil Prangishvili** (Georgia), **Ekaterine Sanaia** (Georgia), **Patrick Gray** (UK), **Ivan Nekliudov** (Ukraine), **Alex Mirianashvili** (Georgia), **Lukyan Anatyshuk** (Ukraine), **Vladimer Kuchukhidze** (Georgia), **Umar Salikhbaev** (Uzbekistan), **Anzor Guldamashvili** (Georgia), **Giorgi Darsavelidze** (Georgia), **Boris Shirokov** (Ukraine), **Alexander Shengelaya** (Georgia), **Nikoloz Chikhradze** (Georgia), **Giorgi Esadze** (Georgia)

REGISTRATION

9:30 – 10:00 AM, 21 October, Georgian National Academy of Sciences, Academy Session Hall
(Address: №52, Rustaveli Ave. 5th floor)

OPENING OF THE CONFERENCE AND PLENARY REPORTS

10:00 AM, 21 October, Georgian National Academy of Sciences, Academy Session Hall

ORAL AND POSTER SESSION

10:00 AM, 22-23 October, Radisson Blu Iveria Hotel
(Address: №1, Rose Revolution Square)

ATTENTION

Participants in the conference have 15 minutes to present their papers and 5 minutes for questions and answers. There may be changes in the order of presentations, which participants will be duly notified about.

Participants have to arrange their posters on the poster boards before the poster session begins. There should be two posters on each side of the board.

21TH October**Academy of Science**

9³⁰ - 10⁰⁰	Registration
10 ⁰⁰ -10 ¹⁰	Opening of the jubilee session dedicated to the Institute 70 th anniversary and welcoming speech – President of Georgian National Academy of Sciences, Academician, Dr.bio.sc., Professor George Kvesitadze
10 ¹⁰ -10 ²⁰	Minister of Education and Science of Georgia – Tamar Sanikidze
10 ²⁰ -10 ³⁰	Minister of Defence of Georgia - Tinatin Khidasheli
10 ³⁰ -11 ⁰⁰	Director of Sokhumi Ilia Vekua Institute of Physics and Technology - Guram Bokuchava
11 ⁰⁰ -11 ¹⁰	Director of State Military Scientific-Technical Center “DELTA” - Ucha Dzodzuashvili
11 ¹⁰ -11 ³⁰	Memories of the Institute "A" (von Ardenne) during 1945-1952 years - Technology Park WISTA, Berlin, Germany – Klaus Thiessen
11 ³⁰ -11 ⁵⁰	Coffee break
11 ⁵⁰ -13 ³⁰	Jubilee greetings
13 ³⁰ -15 ⁰⁰	Furshet-Lunch
Plenari Session	
15 ⁰⁰ -15 ³⁰	L. Anatyshuk Historical aspects, state of the art and trends of further development of thermoelectricity
15 ³⁰ -16 ⁰⁰	F. Marquis The Physics of Carbon Nanotube Nanofluids and Nanostructured Materials for Multifunctional Applications
16 ⁰⁰ -16 ³⁰	M. Torikachvili High-pressure studies of novel superconducting and magnetic materials
16 ³⁰ -17 ⁰⁰	A. Guldamashvili Major stages of Ion implantation development in Ilia Vekua Sukhumi Institute of Physics and Technology

22TH October

Oral Session

Meeting room 4		Meeting room 6	
Chairman: L. Anatyчук, K. Thiessen		Chairman: M. Torikachvili, Z. Guguchia	
Time	Author	Time	Author
10^{00} - 10^{20}	K. Thiessen Photovoltaics-Research and Application at the Science and Technology Park Berlin Adlershof	10^{00} - 10^{20}	Z. Guguchia Hydrostatic Pressure Effects on the Superconducting Gap Symmetry in the Iron-based Superconductor $Ba_{1-x}Rb_xFe_2As_2$
10^{20} - 10^{40}	K. Barbakadze Development of thermoelectric n- and p-type $Si_{0,95}Ge_{0,05}$ alloys and creation on their base thermoelectric batteries, working in air till temperature $1000^{\circ}C$	10^{20} - 10^{40}	A. Peikrishvili Liquid-phase explosive fabrication of superconducting MgB_2 composites
10^{40} - 11^{00}	A.Tavkhelidze Electronic properties of SOI nanograting layers	10^{40} - 11^{00}	I. Metskhvarishvili Influence of fifth group elements on superconductive properties of high temperature superconductors
11^{00} - 11^{20}	B.Shirokov The gas-phase deposition methods in the development of thermoelectric converters and heteroepitaxial structures	11^{00} - 11^{20}	G.Dgebuadze Cryogenic Vacuum Technologies of Achievement and Prospect
11^{20} - 11^{40}	Coffee break		
11^{40} - 12^{00}	Yu.Kozyrev Photoelectric properties of Si/Ge	11^{40} - 12^{00}	V.Levenets Detection of the source of radioactive contamination in

	heterostructures with nanoscale objects		the NPP region
12 ⁰⁰ -12 ²⁰	N. Dolidze Effect of Light Spectral Composition on Photoelectric Properties of Ion Doped Silicon	12 ⁰⁰ -12 ²⁰	I. Sadikov Neutron Activation Analysis of High Purity Materials in Institute of Nuclear Physics of Uzbekistan Academy of Science
12 ²⁰ -12 ⁴⁰	V.Kirtskhalia Influence of Earth's gravitational field on the thermodynamic characteristics of ideal gases	12 ²⁰ -12 ⁴⁰	A.Chirakadze Geopolitical Changes and New Ecological Challenges in the Context of Management of the Industrial and Municipal Waste in the Post Soviet Space. Prospective of “green” utilization of agricultural waste in Georgia
13 ⁰⁰ -14 ⁰⁰	LUNCH		
14 ⁰⁰ -15 ⁰⁰	Poster Session		
Chairman: B. Shirokov, G.Darsavelidze		Chairman: F. Marquis, R.Chedia	
15 ⁰⁰ -15 ²⁰	V. Kulikauskas Investigation of SiO ₂ /Si Structure Combine Implanted by Zn ⁺ and O ⁺ Ion	15 ⁰⁰ -15 ²⁰	P. Kervalishvili Boron isotope enriched graphene based neutron sensors
15 ²⁰ -15 ⁴⁰	I.Kurashvili Mechanical relaxation processes in monocrystalline Si-Ge alloys.	15 ²⁰ -15 ⁴⁰	T. Kuchukhidze Fabrication and Study of Alumina Based Matrix Composite Ceramics
15 ⁴⁰ -16 ⁰⁰	G.Kvinikadze Efficiency of application of super-pure gallium ($\geq 7N+$) obtained by membrane technology for	15 ⁴⁰ -16 ⁰⁰	N.Chikhradze Bulk nanocomposites by adiabatic explosion consolidation of powders

	production of high quality GaAs single crystals		
16^{00} - 16^{20}	Coffee break		
16^{20} - 16^{40}	L. Ichkitidze Mechanical Properties of the Bulk Nanobiomaterial	16^{20} - 16^{40}	V.Vardanyan Investigation and Design of Metal to Ceramic Bonding Technologies for Particle Accelerator's Vacuum RF Window
16^{40} - 17^{00}	L.Nadiradze, Investigation of Optical Absorption in III-V Compounds	16^{40} - 17^{00}	N.Jalagonia Impregnation of Iron (II, III) Compounds in Wood and Their Reduction till Nano Zero-valent Iron
17^{00} - 17^{20}	A.Sichinava Investigation of photoelectric sensitivity spectra in the near infrared radiation range of p-n structures formed on Si-Ge substrates	17^{00} - 17^{20}	S. Hayrapetyan Manganese Dioxide (MnO_2) – Containing Composite Sorbents
17^{20} - 17^{40}	Z.Jibuti Original technology of fast synthesis of modern materials by photon irradiation	17^{20} - 17^{40}	L. Gurchumelia Development of technology for production of new types, eco-safe, composite fire-extinguishing and fire- protective materials

23TH October**Oral Session****Meeting room 4****Meeting room 6****Chairman:****V.Levenets, I.Sadikov****Chairman:****Yu. Kozyrev, V. Kulikauskas**

Time	Author	Time	Author
10 ⁰⁰ -10 ²⁰	L.Chkhartishvili Relative stability of quasi-planar boron cluster.	10 ⁰⁰ -10 ²⁰	N.Kekelidze The Technology for Creation of Radiation Resistant Materials
10 ²⁰ -10 ⁴⁰	M.Mebonia Physical properties of nanograting layers	10 ²⁰ -10 ⁴⁰	L. Jibuti Development of technology receiving thin dielectric layers for micro and nanoelectronics
10 ⁴⁰ -11 ⁰⁰	K.Kobakhidze Development directions of the energy converters based on semiconductor p-n junctions	10 ⁴⁰ -11 ⁰⁰	N. Bichiashvili Arsenic-Containing Ore Production Waste Monitoring and Possibilities of Remediation in Racha-Svaneti Regions of Georgia
11 ⁰⁰ -11 ²⁰	V.Lysko Metrology of thermoelectric materials	11 ⁰⁰ -11 ²⁰	U. Kurbanov Possible metal-insulator transitions and nanoscale phase separation in hole-doped cuprates
11 ²⁰ -11 ⁴⁰	Coffee break		
11 ⁴⁰ -12 ⁴⁰	Poster Session		
12 ⁴⁰ -13 ⁰⁰	Closing of the Conference		

POSTER SESSION
ПОСТЕРНАЯ СЕССИЯ

1. **T. Paghava, M. Metskhvarishvili, M. Beridze, I. Kalandadze, M. Kvirikashvili** Investigation of n-Si crystals irradiated by high-energy protons through the Photo-Hall method
2. **T. Paghava, M. Metskhvarishvili, M. Beridze, I. Kalandadze, M. Kvirikashvili** Growth Defects Radiation Annealing in n-Si crystals received by the zone melting
3. **A. Tutunjan** Semiconductor Structures for Low-Temperature Switches based on Germanium Doped by Antimony and Multi-Charged Gold Impurities
4. **I. Tabatadze, M. Kadarua, G. Chubinidze, L. Gapishvili, T. Melashvili, K. Komakhidze** Influence of Argon Ion Irradiation on the Electrical Characteristics of Si-Ge Substrates
5. **E. Khutsishvili, N. Khutsishvili, L. Gabrichidze, N. Kobulashvili, N. Kekelidze** Removal of Impurities from Metallurgical Silicon
6. **Sh. Makhmudov, Sh. Makkhamov, A. Sulaimanov, R. Rafikov, K. Bakmatov, Kh. Ergashev** Influence of Boron concentration on charge carriers lifetime in neutron-doped Silicon
7. **T. Pavliashvili, A. Tutunjan, G. Tsertsvadze** Deposition of Porous Silicon Dioxide Films by Sol-Gel Method
8. **A. Sichinava, I. Nardaia, N. Gapishvili, G. Archuadze, Ts. Nebieridze, O. Kashia** Influence of Argon Ion Irradiation on Mechanical Properties of Monocrystalline Si-Ge Alloys
9. **F. Basaria, I. Tabatadze, M. Rekhviashvili** Obtaining and investigating materials for anti-sublimation of medium temperature branches of thermoelements and thermobatteries based on PbTe and GeTe
10. **A. Ugulava, S. Chkhaidze, Sh. Kekutia, M. Verulashvili** Determination of the magnetic anisotropy constant of nanoparticles using measurements of the low-temperature heat capacity
11. **Z. Vardosanidze, G. Bokuchava, T. Sulaberidze, V. Kuchukhidze, D. Berishvili** For holographic raster concentrator photodiode matrix
12. **R. Melkadze, A. Didebashvili, G. Kalandadze, G. Peradze, T. Makalatia, Z. Chakhnakia, K. Chitaita** - Nanoheterostructure for X-Ray Sensors
13. **Ts. Gagnidze, R. Chagelishvili, N. Chavtasi** Nontraditional methods of recovery of gold from antimony ores and concentrates

14. M. Mostafavi, A. Tadjeddine, Ch. Humbert, P. Kervalishvili, T. Bzhalava, V. Kvintradze, M. Tsirekidze, G. Kakabadze, T. Berberashvili Studying Physical Characteristics of Nano-Bio-Materials for Sensory Application
15. A. Satieev, Sh. Makhkamov, M. Kalanov, M. Erdonov, V. Rustamova, S. Bakiev, Kh. Kholmedov Copper - Oxygen Precipitates in Neutron Transmutation Silicon
16. A. Bibilashvili, R. Gulyaev, N. Dolidze, G. Skhiladze, Z. Jibuti Low-Temperature Method of Formation of GaN Nanofilms
17. T. Marsagishvili, G. Mamniashvili, G. Tatishvili, N. Ananiashvili, M. Gachechiladze, J. Metreveli Study of temperature dependence of some physical characteristics of electrolytic nickel coatings on copper
18. Z. Jabua, A. Giginishvili Preparation of some rare earth element compounds films and their mechanical strength
19. J. Aneli, L. Nadareishvili, M. Bolotashvili Functionally graded polymer composites with electric and magnetic properties
20. M. Avaliani General Overview of Synthesis and Properties of a New Group of Inorganic Polymers Double Condensed Phosphates
21. R. Tushurashvili, D. Chorgolashvili, T. Khuchua, N. Kobaladze, M. Alelishvili, E. Gelashvili Utilization of scrap tires by low-temperature pyrolysis and investigation of obtained Products
22. M. Nadareishvili, T. Gegechkori, G. Mamniashvili, T. Zedginidze, T. Petriashvili Study on the Possibilities for Changing the Absorption Spectra of Photocatalytic TiO₂ Nanopowders with the Aim of Improving Their Efficiency
23. J. Aneli, N. Bakradze, T. Dumbadze Effect of Laser Radiation on the Electric Conducting and Magnetic Properties of Polymer Materials Surfaces
24. E. Ibragimova, Sh. Malikovi, V. Pikuli, M. Iuldashevi, V. Sandalovi, E. Iusupovi, Kh. Khamidovi Promising Materials Obtained by Coal Ash Separation
25. A. Guldamashvili, N. Kutsia, Yu. Nardaya, Ts. Nebieridze, A. Sichinava Surface Modification of AISI 310 and 440C Steels by Ion Implantation
26. R. Shamugia The model of assessment of the impact of a temporal-redundancy on to the implementation of job in the technical system with the subsystems of detection of failures of the servers and of their recovery

27. T. Chelidze, L. Enukidze, M. Chankashvili, T. Loladze Animal hair as biological indicator for heavy metal pollution in the two regions of Georgia
28. M. Vatiashvili, U. Dzodzuashvili, I. Janelidze The role of marine chloride in the cloud particles formation for the different phase structures with artificial increasing of precipitation and impact on the hail processes
29. D. Pataridze, M. Kvinikadze, D. Kuparadze, V. Kirakosyan, N. Khundadze Radiation ecology in western Georgia
30. E. Sanaia, G. Bokuchava, R. Chedia. Synthesis and consolidation of superconductor magnesium diboride
31. A. Gevorgyan, V. Avagyan, A. Simonyan, V. Dekhtiarov, V. Danielyan, T. Mkrtchyan, V. Vardanyan Design & fabrication of the experimental diffusion welding machine
32. T. Kuchukhidze, N. Jalabadze, G. Kvartskhava, O. Lekashvili, N. Jalagonia, R. Chedia Powdery composites for matrix ceramics

*Thank you for taking part in the international
conference*

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