

Curriculum Vitae

Surname: FEDOTOV
First name: Alexander
Date of Birth: February 7, 1942
Place of Birth: Volgograd (Russia)
Sitizenship: Republic of BELARUS
Highest Degree: Doctor of Science (Physics and Mathematics),
Title: Chief-Reseacher
Institute for Nuclear Problems of
Belarusian State University
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Education:

1. Since 1964 – Master of Physics, Graduated Department of Solid State Physics and Semiconductors of Belarusian State University.
2. 1964 -1966, Post-graduate student of Department of Solid State Physica and Semiconductors of Belarusian State University.

Carrier/Employment:

1. 1964 - MS degree and Diploma in Physics from the Faculty of Physics of Belarusian State University, Belarus (MS thesis “Investigation of electrical properties of Bithmuth thin layers”)
2. Since 1966 to 1970 – Engineer and Senior Engineer in the Institute of Solids and Semiconductor Physics of Academy of Sciences of Belarus.
3. Since 1971 to 1980 - Researcher in the Institute of Solids and Semiconductor Physics of Academy of Sciences of Belarus.

4. 1973 - researcher in the Department of Applied Physics of Technical University of Vienna (Austria)
5. 1974 - PhD degree in Physics and Mathematics at the Institute of Solid State and Semiconductor Physics of the National Academy of Sciences of Belarus (PhD thesis "Structural, electrical and superconducting properties of Nb-V-Cr alloys")
6. Since 1980 to 1981 - Senior Researcher in the Department of Semiconductor Physics of Belarusian State University.
7. Since 1981 to 1993 - Associated Professor of the Department of Semiconductor Physics of Belarusian State University.
8. Since 1983 to 1996 - vice-dean on Science of Faculty of Physics of Belarusian State University.
9. 1988 - researcher in the Department of Semiconductor Physics of Lanzhou University (Lanzhou, China).
10. 1994 - DSc degree in Physics and Mathematics at the Belarusian State University, Belarus (DSc thesis "Carrier transport in inhomogeneous crystals with extended defects near metal-nonmetal transition")
11. Since 1994 to 1997 - Professor of Department of Semiconductor Physics of Belarusian State University.
12. Since 1997 to 2014 - Head of Chair, Chair of Energy Physics of Belarusian State University.
13. Since 2014 to 2018 - Professor of Chair, Chair of Energy Physics of Belarusian State University.
14. Since 2018 up to now - Chief-Researcher, Institute for Nuclear Problems of Belarusian State University

Specialization:

(a) *Main field:* Nanomaterials and nanostructures.

(b) *Other fields:* Solid State Physics, Nanocomposites, Nanodevices, Semiconductors, Photovoltaics, Thermoelectric materials, Hydrogen in Silicon Materials,.

(c) *Current research interests:* Nanomaterials and Nanostructures, Magnetic nanocomposites, Solar cells and Photodetectors, Template-assisted nanostructures, Solar Cells Materials, Carrier Transport in Disordered and Heterogeneous Solids, Interface and Surface, Thermoelectric Materials, Graphene and Related Materials.

Honours, Awards, Fellowships, Memberships:

1. Since 1973 - Philosophy Doctor

2. Since 1981 - Professor-associate
3. Since 1983 - Member of Scientific Council of Faculty of Physics of Belarusian State University
4. Since 1994 – Doctor of Science (Physics and Mathematics)
5. Since 1994 - Expert of Ministry of Education of Belarus.
6. Since 1995 – Professor of Physics
7. Since 1995 - Member of Physical Society of Belarus
8. Since 1995 to 2014 - Member of Scientific Council of Belarusian State University.
9. Since 1996 up to now – Vice-Chairman and Scientific Secretary of Scientific Council on Defences of PhD and DSc Dissertations.
10. Since 1996 up to now – Expert-evaluator of State Committee on Science and Technology of Belarus.
11. Since 1996 up to now – Expert-evaluator of Fundamental Science Foundation of Belarus.
12. 1995 - 2002 - Expert-evaluator of INTAS Program
13. 1996 - 2004 - Coordinator of the Fundamental Research Program of Ministry of Education of Belarus on the Problem "Low-dimensional systems".
14. 2004 -2015 – So-Coordinator of the National Complex Program of Belarus "Nanomaterials and Nanotechnology" (Section of Physics and Chemistry of Nanostructured Materials).
15. 2007 – 2002 - Member of the Joint Scientific Council of Belarus on Material Science.

CURRENT RESEARCH ACTIVITY:

- Semiconductor Physics and Technology (Solar Cells and Photodetectors, Extended Defects in Semiconductors, Semiconductor Materials for Solar Cells, Hydrogen in Semiconductor Materials, Interface and Surface)
- Solid State Physics (Carrier Transport in Disordered and Inhomogeneous Solids, Diffusion in Solids)
- Inhomogeneous and Heterogeneous Condensed Media (Nanomaterials, Nanostructures, Nanocomposites, Polycrystalline Materials, Template-assisted nanostructures, Graphene and Related 2D Materials, Thermoelectric Ceramics)

PROFESSIONAL ACHIEVEMENTS:

Professor title, 3 monography, 9 Proceedings (as Editor), 9 textbooks, more than 300 papers published, 9 patents

PARTICIPATION IN THE NATIONAL AND INTERNATIONAL RESEARCH PROJECTS (DURING THE LAST TEN YEARS)

1. "Study of nanostructures formation during atomic hydrogen interaction with a silicon surface" (Research Program "Nanomaterials and Nanotechnologies" of Republic of Belarus, contract No 6-08, 2006 – 2010).

2. "Formation of buried layers of silicides and dielectrics in silicon" (Research Program "Nanomaterials and Nanotechnologies" of Republic of Belarus, contract No 6-10, 2006 – 2010).
3. «Phase composition, defect structure and properties of iron-aluminum composites» (Contract No Φ07M-108 with Belarusian Republican Foundation for Fundamental Research, 2007-2009).
4. «Development of a new low-temperature method of formation of dielectric silicon oxide nanolayers», (Contract No T08-157 with Belarusian Republican Foundation for Fundamental Research, 2008 – 2010).
5. «Regularities of the hydrogenation influence on transformation of the defect subsystem, electrical, optical and photoelectrical properties of Cd(S,Se) and Cu(In,Ga)(S,Se)₂ thin films» (Contract No Φ09K-041 with Belarusian Republican Foundation for Fundamental Research, 2009 – 2011).
6. «Influence of the synthesis regimes on optical properties of Cu(In,Ga)(S,Se)₂ films for solar cells» (Contract No Φ09M-081 with Belarusian Republican Foundation for Fundamental Research, 2009 – 2011).
7. «Study of influence of electro- and photoactive dopants on physical properties and phase transitions in the A^{III}B^{III}C₂^{VI} crystals» (Contract No Φ09A3-006 with Belarusian Republican Foundation for Fundamental Research, 2009 – 2011).
8. «Spintronic "metal-dielectric" composites with tunable magnetotransport properties» (Contract No Φ10ΓKHT-001 with Belarusian Republican Foundation for Fundamental Research, 2010 – 2012).
9. «Nanocomposites with "core-shell" ferromagnetic nanoparticles in dielectric matrixes» (Contract No Φ10P-079 with Belarusian Republican Foundation for Fundamental Research, 2010 – 2012).
10. «Functional ensembles of granular composite columnar nanostructures created on the basis of "dielectric/GaAs" porous templates» (Contract No Φ11Д-005 with Belarusian Republican Foundation for Fundamental Research, 2011 – 2012).
11. «Development of pilot space of automated measuring complex for testing of nanostructured thermoelectric materials, and experimental technological process of formation and modification of nanostructured diamond-like carbon films» (Belarusian – Russian research program «Development of nanotechnologies for creation of materials, devices and systems of space technique and their adaptation to other branches of technique and mass production», Contract No 1.1.1, 2009 – 2012).
12. «Development and investigation of nanogranular "metal-dielectric" composite materials with inductive-like impedance» (Research Program "Composite materials" of Republic of Belarus, contract No 2.04, 2009 - 2011) »
13. «Simulation of processes in space solar cells for optimization of their parameters» (Research Program "Space Investigations" of Republic of Belarus, contract No 26, 2010 – 2012).
14. «To develop and produce equipment for the solar cells testing and to test Cu(In,Ga)(Se,S)₂ thin films and solar cells on their basis» (Belarusian – Russian research program «Space – New Technologies» («Cosmos – NT»), contract No 3.3, 2008 – 2011).
15. «Investigation of electromagnetic processes in nanostructures and composite materials for creation on their basis of new elements for opto- and radioelectronics» (Research Program "Electronics and Photonics" of Republic of Belarus, contract No 1.2.05, 2011 – 2013).
16. «Development of physical and chemical bases of technologies for template-based synthesis of composite and multilayered "metal-nonmetal" nanostructures for creation of new generation of magnetoelectronic devices» (Research Program "Nanomaterials and nanotechnologies" of Republic of Belarus, contract No 2.4.08, 2011 – 2013).
17. «Mechanisms of charge transfer and magnetotransport in arrays of carbon nanotubes and magnetic nanofibers in porous silicon» (Research Program "Nanomaterials and nanotechnologies" of Republic of Belarus, contract No 2.4.12.1, 2011 – 2013).

18. «Magnetoresistive and thermoelectric properties of nanogranular composite films» (Research Program “Crystalline and molecular structures” of Republic of Belarus, contract No 1.23.1, 2011 – 2013).

19. «Development of Training Network for Improving Education in Energy Saving» (TEMPUS IV, Joint Project 530379-TEMPUS-1-2012-1-LVTEMPUS-JPCR, 2012 - 2015).

20. “Improvement of master-level education in the field of physical sciences in Belorussian universities” (Joint Project-609557-EPP-1-2019-1-LV-EPPKA2-CBHE-JP-Physics, 2016-2019)

21. “Development of practically-oriented student-centred education in the field of modelling of Cyber-Physical Systems” (Joint Project-609557-EPP-1-2019-1-LV-EPPKA2-CBHE-JP, 2019-2022)

SELECTED PAPERS FOR LAST 20 YEARS:

1. N. Kamaev, S.V. Golod, E.M. Skok, A. Fedotov, A. Mazanik. Characterization of Interfacial States at Silicon Bicrystals. *Solid State Phenomena*, 82-84 (2002) p. 801-806
2. A.Fedotov, A.Mazanik, A.Ulyashin. Electrical activity of grain boundaries in silicon bicrystals and its modification by hydrogen plasma treatment. *Solar Energy Materials and Solar Cells*, 72 (2002) p. 589-595
3. O.I. Velichko, V.A. Dobrushkin, A.K. Fedotov, V.A. Tsurko. Segregation of Mg Implanted into InAs: Influence of the Internal Elastic Stresses. *Solid State Phenomena*, 82-84 (2002) p. 569-570
4. A.Fedotov, A.Mazanik, A. Ulyashin. Charge Relaxation at Oxygen-Enriched Silicon Grain Boundaries. *Solid State Phenomena*, 82-84 (2002) pp. 515-520
5. A. Fedotov, N.A. Drozdov. Electron-hole drops in silicon with dislocations. *Journal of Physics: Condensed Matter*, 14 (2002) pp. 12813-12818
6. A.Fedotov, Anis M.H. Saad, K. Enisherlova, A.Mazanik Electrical characterization of interfaces in unitype directly bonded silicon wafers. *Material Science and Engineering*, B91-92 (2002) pp. 384-388.
7. A.V. Mudryi, A.I. Patyk, I.A. Shakin, A.G. Ulyashin, R. Job, W.R. Fahrner, A. Fedotov, A. Mazanik, N. Drozdov Impurities and defects in multi-crystalline silicon for solar cells: low-temperature photoluminescence investigations. *Solar Energy Materials & Solar Cells*, 72 (2002) pp. 503-508.
8. A. Fedotov, Anis M.H. Saad, K. Enisherlova, A.Mazanik, B.G. Gorachev, E.M. Temper. Electrical properties of Si/SiO₂/Si structures produce by dyrect-bonding of pre-oxdyzied silicon wafers. *Microelectronic Engineering*, 66 (2003) pp. 522-529
9. N. Drozdov and A. Fedotov. Electron-hole drops in dislocational silicon. *Microelectronic Engineering*, 66 (2003) pp. 392-399
10. O. I. Velichko, A. K. Fedotov. The influence of charge states and elastic stresses on the dif-fusion of point defects in silicon. *Materials Science and Engineering B*, 99 (2003) pp. 567-571
11. J.A. Fedotova, A.K. Fedotov, N.A. Shishonok, J. Stanek. Charge state and distribution of iron ions in polycrystalline cubic boron nitride. *Optical Materials*, 23 (2003) p. 71-77.
12. O. I. Velichko, A. K. Fedotov. Equations for coupled diffusion of dopants atoms and point defects in semiconductor crystals. *Nonlin. Phenom. in Complex Syst.*, 6 (2003) pp. 607-618.
13. A.K.Fedotov, A.L.Pushkarchuk, S.A.Kuten. Simulation of oxygen contaminated silicon grain boundaries in cluster approximation. *Solid State Phenomena*, 95-96 (2004) pp. 571-576
14. A. L. Pushkarchuk, A. K. Fedotov and S. A. Kuten. Simulation of oxygen-containing complexes at silicon-silicon interface in cluster approximation. *J. of Alloys and Compounds*, 382 (2004) pp. 278-282
15. A.M. Saad, A.V. Mazanik, Yu.E. Kalinin, J.A. Fedotova, A.K. Fedotov, S. Wrotek, A.V. Sitnikov and I.A. Svito. Reviews on Advanced Materials Science 8 (2004) 152-157.
16. D. Fink, D. Sinha, J. Opitz-Coutureau, A.V. Petrov, S.E. Demyanov, W.R. Fahrner, K. Hoppe, A. K. Fedotov, L.T. Chadderton, A. S.Berdynsky, Nanotechnology with ion track - tailored media, *Physics, Chemistry and Application of Nanostructures (Materials of the “Nanomeeting – 2005”, Minsk, Belarus)*, 474-481 (2005)
17. A.V.Petrov, S.E. Demyanov, D.Fink, W.R. Fahrner, A.K. Fedotov, P.S.Alegaonkar, A.S. Berdinsky, Novel electronic devices for nanotechnology based on materials with ion tracks, *Physics, Chemistry and Application of Nanostructures (Materials of the “Nanomeeting – 2005”)*, 544-547 (2005)

18. A.M. Saad, A.L. Pushkarchuk, A.K. Fedotov, S.A. Kuten, and A. Mazanik, Simulation of oxygen- or carbon containing complexes at silicon-silicon interface in cluster approximation. *Phys. stat. sol. (c)* 2 (2005) 1886–1891
19. D.K. Ivanou, E.A. Streltsov, A.K. Fedotov, A.V. Mazanik. Electrochemical deposition of nanocrystalline PbSe layers onto p-Si (100) wafers. *Thin Solid Films*. 487 (2005) pp.49-53.
20. D.K. Ivanou, E.A. Streltsov, A.K. Fedotov, A.V. Mazanik, D. Fink, A. Petrov. Electrochemical deposition of PbSe and CdTe nanoparticles onto p-Si (100) wafers or into nanopores in SiO₂/Si (100) structure. *Thin Solid Films*. 490 (2005) pp.154-160.
21. Saad A.M., Mazanik A.V., Fedotov A.K., Patrino A.A., Chigir S.V., Drozdov N.A., Stognij F.I. Modification of radiation hardness of silicon p-n junction photodiodes by hydrogen plasma treatment. *Jornal of Material Scence*, 40 (2005) pp.1399-1403.
22. A.L. Pushkarchuk, A.M. Saad, A.K. Fedotov, S.A. Kuten. Simulation of carbon containing complexes at silicon-silicon grain boundaries in cluster approximation. *Thin Solid Films* 87 (2005) pp. 142-146.
23. A. Saad, A. Mazanik, A. Fedotov, J. Patryka, P. Wegierek, P. Zukowski. Influence of low-energy ion-beam treatment by hydrogen on electrical activity of grain boundaries in polycrystalline silicon. *Vacuum* 78 (2005) pp.269-272.
24. D.K. Ivanou, E.A. Streltsov, A.K. Fedotov, A.V. Mazanik, D. Fink, A. Petrov. Electrochemical deposition of PbSe and CdTe nanoparticles onto p-Si (100) wafers and nanopores in SiO₂/Si (100) structure.. *Thin Solid Films* 490 (2005) pp. 154-160.
25. Anis Saad, A.K. Fedotov et al. AC conductance of (Co_{0.45}Fe_{0.45}Zr_{0.10})_x(Al₂O₃)_{1-x} nano-composites. *Progress in Solid State Chemistry*, 34 (2006) pp. 139-146.
26. A.M. Saad, A.K. Fedotov, I.A. Svito, J.A. Fedotova, B.V. Andrievsky, Yu.E. Kalinin, A.A. Patrino, V.V. Fedotova, V. Malyunina-Bronskaya, A.V. Mazanik, A.V. Sitnikov. Impedance and magnetization of CoFeZr nanoclusters embedded into alumina matrix. *Journal of Alloys and Compounds* 423 (2006) pp. 176-180
27. A.M. Saad, A.K. Fedotov, J.A. Fedotova, I.A. Svito, B.V. Andrievsky, Yu.E. Kalinin, V.V. Fedotova, V. Malyunina-Bronskaya, A.A. Patrino, A.V. Mazanik, A.V. Sitnikov. Characterization of (Co_{0.45}Fe_{0.45}Zr_{0.10})_x-(Al₂O₃)_{1-x} nanocomposite films applicable as spintronic materials. *Phys. Stat. Sol. (c)* 3 (2006) pp. 1283-1290
28. Anis Saad, O.I. Velichko, Yu.P. Shaman, A.V. Mazanik, A.K. Fedotov, V.V. Fedotova. Modeling of hydrogen diffusion in silicon crystals. *Nuclear Instruments and Methods in Physics Research B* 253 (2006) pp. 118–121
29. A. Saad, A. Fedotov, O. Velichko, V. Pachynin, A. Davydko. Simulation of diffusion in p-type compound semiconductor: the case of beryllium implanted in InGaAs. *Phys. Stat. Sol. (b)* 243 (2006) pp. 2665-2671.
30. J. Fedotova, A. Larkin, A. Fedotov, A. Kalaev, A. Sitnikov, Yu. Kalinin, B. Andrievski, A. Patrino. Influence of oxygen on magnetoimpedance of nanocomposites (Co₄₅Fe₄₅Zr₁₀)_x (Al₂O₃)_{100-x} // *Physics, Chemistry and Application of Nanostructures. Reviews and Short Notes to NANOMEETING-2007* (Minsk, Belarus, May 22-25, 2007, Eds V. E. Borisenko, S. V. Gaponenko, V. S. Gurin). 2007. pp. 62-65.
31. Yu.A. Ivanova, D.K. Ivanou, E.A. Streltsov, A.K. Fedotov Electrochemical deposition of Te and electroless deposition of Se nanoparticles in etched tracks of Au⁺ ions in SiO₂ layer on n-Si(1 0 0) wafers *Materials Science and Engineering B* 147 (2008) 271–275
32. O. Zinchuk A. Saad N. Drozdov A. Fedotov S. Kobeleva, A. Mazanik Ж A. Patrino V. Pilipenko A. Pushkarchuk. Formation of insulating oxygen-containing layer on the silicon wafer surface using low-temperature hydrogenation. *J Mater Sci: Mater Electron* (2008) 19:S273–S276
33. A.M. Saad, O.V. Zinchuk, N.A. Drozdov, A.K. Fedotov, A.V. Mazanik. Influence of low-temperature Argon ion-beam treatment on the photo-voltage spectra of standard Cz Si wafers. *Solid State Phenomena Vols. 131-133* (2008) pp. 333-338
34. A. Saad, A. Odrinski, M. Tivanov, N. Drozdov, A. Fedotov, V. Gremenok, A. Mazanik, A. Patrino, V. Zalesski, E. Zaretskaya. Investigation of defects in Cu(In,Ga)(S,Se)₂ films using the photocurrent decay technique *J. Mater. Sci: Mater Electron* (2008) 19, S371–S374
35. Anis Saad1, O.I. Velichko, Yu. P. Shaman, A. Barcz, A. Misiuk and A.K. Fedotov Investigation of the Hydrogen Transport Processes in Crystalline Silicon of n-Type Conductivity. *Solid State Phenomena Vols. 131-133* (2008) pp. 425-430
36. A.V. Frantskevich1, A.M. Saad, A.K. Fedotov, E.I. Rau, A.V. Mazanik, N.V. Frantskevich. SEM investigation of surface defects arising at the formation of a buried nitrogen-containing layer in silicon. *Solid State Phenomena Vols. 131-133* (2008) pp. 195-200

37. O.I. Velichko, Yu.P. Shaman, A.K. Fedotov, A.V. Masanik. Set of equations for transient enhanced diffusion in shallow ion-implanted layers. *Computational Materials Science* 43 (2008) 279–285
38. A. V. Frantskevich, A. M. Saad, A. V. Mazanik, N. V. Frantskevich, A. K. Fedotov, V. S. Kulinkauskas, A. A. Patryn. Study of nanopipes formed in silicon wafers using helium implantation by SEM, RBS and SIMS methods. *J. Mater. Sci: Mater Electron* (2008) 19:S239–S242
39. M. Tivanov, E. Ostretsov, N. Drozdov, L. Survilo, A. Fedotov, Yu. Trofimov, A. Mazanik. Optical and photoelectrical properties of CdSxSe1-x films produced by screen-printing technology. *Physica Status Solidi (b)* Volume 244, Issue 5, 2007. Pages 1694-1699
40. A.V. Frantskevich, A.M. Saad, A.V. Mazanik, N.V. Frantskevich, A.K. Fedotov, V.S. Kulinkauskas, A.A. Patryn. Study of nanopipes formed in silicon wafers using helium implantation by SEM, RBS and SIMS methods *J. Mater. Sci: Mater Electron* (2008) 19:S239–S242
41. A.Saad, A. Odrinski, M. Tivanov, N. Drozdov, A. Fedotov, V. Gremenok, A. Mazanik, A. Patryn, V. Zalesski, E. Zaretskaya.. Investigation of defects in Cu(In,Ga)(S,Se)_2 films using the photocurrent decay technique *Journal of Materials Science: Materials in Electronics*. – 2008. – Vol. 19, Suppl. 1. – P. 371-374.
42. O. Zinchuk, A. Saad, N. Drozdov, A. Fedotov, S. Kobeleva, A. Mazanik, A. Patryn, V. Pilipenko, A. Pushkarchuk. Formation of insulating oxygen-containing layer on the silicon wafer surface using low-temperature hydrogenation *J Mater Sci: Mater Electron* (2008) 19:S273–S276
43. Bohdan Andriyevsky, Aleksy Patryn, Ivan A. Svito, Tatiana V.Pivovarchik, Aleksander K. Fedotov DC conductivity of amorphous composites $(\text{Fe}_{0.45}\text{Co}_{0.45}\text{Zr}_{0.10}) + (1-x)(\text{Al}_2\text{O}_3)$ in the range of 20 – 300 K. *Electrical Review*, №3, (2008) 114-116
44. Bohdan Andriyevsky, Aleksy Patryn, Zbigniew Czapla, Slavomir Dacko, Julia A. Fedotova, Andrey V.Larkin, Vera.V.Fedotova Impedance spectroscopy study of amorphous composites $x(\text{Fe}_{0.45}\text{Co}_{0.45}\text{Zr}_{0.10}) + (1-x)(\text{Al}_2\text{O}_3)$ *Electrical Review*, №3, (2008) 117-119
45. Yu.A. Ivanova, D.K. Ivanou, E.A. Streltsov, A.K. Fedotov Electrochemical deposition of Te and electroless deposition of Se nano-particles in etched tracks of Au^+ ions in SiO_2 layer on n-Si(100) wafers. *Materials Science and Engineering B* 147 (2008) 271–275
46. Anis Saad1, O.I. Velichko, Yu. P. Shaman, A. Barcz, A. Misiuk and A.K. Fedotov. Investigation of the Hydrogen Transport Processes in Crystalline Silicon of n-Type Conductivity. *Solid State Phenomena* Vols. 131-133 (2008) pp. 425-430
47. O.I. Velichko, Yu.P. Shaman, A.K. Fedotov, A.V. Masanik. Set of equations for transient enhanced diffusion in shallow ion-implanted layers. *Computational Materials Science* 43 (2008) 279–285
48. A.M.Saad, A.V.Frantskevich, N.V. Frantskevich, A.K.Fedotov, A.V.Mazanik, M.I.Tarasik, A.M.Yanchenko, P.Wengierek, P.Zukovski Formation of nanjtubes in Cz-Si wafers using He^+ implantation and subsequent O^{+--} or N^+ - plasma treatment. *Vacuum*, 2009, V.83, P.S103-S106.
49. O. Zinchuk, N. Drozdov, A. Fedotov, A. Mazanik, N. Krekotsen, V. Ukhov Effect of the hydrogen and argon ion-beam treatments on the structural and electrical properties of Cz Si wafers: comparative study. *Vacuum*. – 2009. – Vol. 83. – P. S99–S102.
50. A.M. Saad, A.V. Frantskevich, A.K. Fedotov, E.I. Rau, A.V. Mazanik, N.V. Frantskevich. SEM and SIMS study of the buried Si_xN_y layer formed in silicon. *Vacuum*. – 2009. – Vol. 83. – P. S107-S110.
51. A.V. Frantskevich, A.K. Fedotov, A.V. Mazanik, N.V. Frantskevich . Copper in-depth distribution in hydrogen implanted Cz Si wafers subjected to two-step annealing. *Solid State Phenomena*. – 2010. – Vols. 156-158. – P. 161-166.
52. Oleg Velichko, Yury Shaman, Alexander Fedotov Modeling of nucleation and evolution of hydrogen-induced platelets in silicon crystals *Phys. Status Solidi C* 6, №8, (2009) 1979-1982
53. A.V. Frantskevich, A.K. Fedotov, A.V. Mazanik, N.V. Frantskevich. Copper in-depth distribution in hydrogen implanted Cz Si wafers subjected to two-step annealing. *Solid State Phenomena*. – 2010. – Vols. 156-158. – P. 161-166.
54. N.V. Frantskevich, A.V. Frantskevich, A.K. Fedotov, A.V. Mazanik Buried insulating layer formation in Cz Si wafers after helium implantation, nitrogen plasma treatment and annealing. *Solid State Phenomena*. - 2010. – Vols. 156-158. – P. 91-94.
55. A.Pushkarchuk, A.Saad, V.Pushkarchuk, A.Fedotov, A.Mazanik, O.Zinchuk, S.Turishchev. Quantum chemical modelling of Si sub-surface amorphisation due to incorporation of H atoms and its stabilisation by O atoms. *Physica status solidi (c)*. – 2010. – NN. 3-4. – P. 650-653.
56. O.Zinchuk, A.Fedotov, Ngo Xuan Cuong, A.Mazanik, N.Krekotsen, V.Ukhov, N.Stas'kov, A.Sotski, S.Turishchev, P. Wegierek. Comparative analysis of the influence of low-energy hydrogen and

- helium ion-beam treatments on the structural and electrical properties of Cz Si wafers. Electrical review. – 2010. – N 7, – P. 211-214
57. A. Fedotov, I. Ivashkevich, S. Kobeleva, O. Korolik, A. Mazanik, N. Stas'kov, S. Turishchev. Structure of the near-surface layer of Cz Si wafers subjected to low-temperature low-energy ion-beam treatment. *Physica Status Solidi (c)* 8 (2011) 739-742
 58. Ali A. Ronassi, A. Fedotov. Persistent photoconductivity relaxation in single crystalline cadmium telluride *Azerbaijan journal of Physics*, v.XVI, number 2, 2010. P.392-395
 59. A.K. Fedotov, A.A. Ronassi, Vo Thi Tuiet Vi, A.V. Mazanik, O.V. Korolik, S.M. Rabchynski, G.A. Ragoisha, E.A. Streltsov. Electrical, photoelectrical, and photoelectrochemical properties of electrodeposited cdte films subjected to high-energy irradiation. *Thin Solid Films* 519 (2011) 7149–7152
 60. A. Fedotov, I. Ivashkevich, S. Kobeleva, O. Korolik, A. Mazanik, N. Stas'kov, S. Turishchev, Structure of the near-surface layer of Cz Si wafers subjected to low-temperature low-energy ion-beam treatment. *Physica Status Solidi (c)*. – 2011. – Vol. 8. – No. 3. – P. 739-742.
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