




PERSONAL INFORMATION

Ursachi Veaceslav



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Sexul M | Data nașterii 19/07/1956 | Naționalitatea Republica Moldova

PROFESSIONAL EXPERIENCE

- 2018 – present Deputy director of the Department of Exact and Engineering Sciences, Academy of Sci. Moldova
- 2013 – 2018 Director of the Department of Engineering and Technological Sciences, Academy of Sci. Moldova
- 1981 – 2013 Institute of Applied Physics of the Academy of Sci. Moldova: 1981 – 1989 - junior researcher; 1989 – 1994 researcher; 1994 – 1998 – senior researcher; 1998 – 2001 – coordinator researcher; 2001 – 2005 – principal researcher; 2006 – 2009 – head of laboratory; 2009 – 2012 principal researcher; 2012 deputy director; 2013 interim director
- 2017 - present Plenipotentiary representative of the Government of Republic of Moldova to JINR, Dubna, Russia
- 2014 - 2020 Delegate to the Horizon 2020 Program Committee from the Republic of Moldova
- 2015 - 2020 Director of Doctoral School in Physics, University of the Academy of Sci. Moldova
- 2008 - 2021 Technical University of Moldova, chairman of the license and master examination Commission
- 2008 - 2019 Member of the CNAA/ANACEC Evaluation Commission, scientific secretary
- 2005 - 2018 Scientific secretary of the Profile Seminar for defending doctoral thesis in physics
- 2012 – 2013 Lecturer for summer schools for masters and PhD students
- 2008 – 2009 University of the Academy of Sci. Moldova, special course
- 1988 - 1993 Technical University of Moldova, lecturer at the Department of computers informatics and microelectronics
- 1979 - 1981 Research Center of Electronic and Computer Technique, Chișinău, engineer

INTERNSHIPS ABROAD

- 1997 Technical University of Athens, Greece (NATO fellowship)
- 1998 Technical University Darmstadt, Germany
- 2000 Max Planck Institute for Solid State Research, Stuttgart, Germany (BMBF fellowship)
- 2003 Laser-Laboratorium Göttingen, Germany
- 2004 Technical University Darmstadt, Germany
- 2005 Christian-Albrechts University, Kiel, Germany
- 2010 Technical University Darmstadt, Germany

EDUCATION AND SCIENTIFIC DEGREES

- 2023 Correspondent member of the Academy of Sciences of Moldova
- 1999 Research associate professor title, Institute of Applied Physics of the Academy of Sciences Moldova
- 1998 Habilitated doctor in physics and mathematics, Institute of Applied Physics of the Academy of Sciences of Moldova
- 1987 Doctor (PhD) in physics and mathematics, “Lebedev” Institute of the Academy of USSR, Moscow
- 1982-1985 PhD student “Lebedev” Institute of the Academy of USSR, Moscow;
- 1979 M.S. degree, Moscow Institute of Physical Engineering (MEPhI University), Moscow.

Other languages	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1	C1	C1	C1	C1
Russian	C2	C2	C2	C2	C2
French	A1	A2	A1	A1	A1

Levels: A1/2: Basic user - B1/2: Independent user - C1/2: Proficient user
Common European Framework of Reference for Languages

- PRIZES**
- 2005 – Award of the Academy of Sciences of Moldova for the best scientific research of the year
 - 2006 – Diploma of merit of the Supreme Council for Science and Technological Development
 - 2013 – Award of the Academies of Sciences of Ukraine, Belarus and Moldova
 - 2014 – Award of the Simonov Foundation
 - 2016 – Diploma de Merit of the National Council for Accreditation and Attestation of the Republic of Moldova
 - 2018 – Diploma of Gratitude of the National Agency for Quality Assurance in Education and Research of the Republic of Moldova
 - 2018 – Diploma of Gratitude of the General Directorate of Education, Youth and Sports of the Chisinau Municipal Council
 - 2018 – Diploma de Merit of the National Agency for Quality Assurance in Education and Research of the Republic of Moldova

- AWARDS**
- Medal “Dimitrie Cantemir” of the Academy of Sciences of Moldova
 - Medal “Nicolae Milescu Spătaru” of the Academy of Sciences of Moldova
 - Jubilee medal dedicated to the 55-anniversary of Academy of Sciences of Moldova
 - 15 medals at International exhibitions „Eureka” (Bruxelles), Geneva Inventions, Pittsburgh INPEX

- PhD SUPERVISOR**
- 5 PhD theses defended
 - 2 PhD theses in preparation

Scientific interests Solid state and semiconductors physics – optical, electric and photoelectric properties, laser effects, pressure induced phase transitions in ternary and multinary compounds; material science – III-V, II-VI, and ternary materials; radiation hard materials; nanostructures and composite materials for optoelectronics and photonics.

Contributions Initiating investigation of pressure induced phase transitions and order-disorder effects in tetrahedrally coordinated $A^{\text{II}}B^{\text{III}}_2C^{\text{VI}}_4$ compounds which are a class of ordered vacancy compounds and spinel-type $A^{\text{II}}B^{\text{III}}_2C^{\text{VI}}_4$ compounds. As a result, regularities of pressure induced disordering processes and systematics of phase transitions in ordered vacancy compounds were established, the role of the kinetics on the occurrence of phase transitions was evidenced, the equation of state and the axial compressibilities for the low-pressure phase of all the investigated materials have been experimentally and theoretically determined and compared to other related ordered-vacancy compounds. Another contribution is related to researches carried out in the field of compound semiconductors physics, technologies for semiconductor materials treatment and production of nanostructured and nanocomposite materials, as well as development and study of optoelectronic and photonic devices on their basis. Different types of laser resonators based on ZnO structures and random laser structures based on disordered semiconductor compound templates have been developed. It was demonstrated that ZnO provides conditions for the formation of a variety of micro/nanostructures which act as laser resonators sustaining guided modes, Fabry–Perot modes, whispering gallery modes, random lasing and a combination of them, which are prospective for applications in integrated nanoscale optoelectronics, photonics, and sensor technologies. Regularities and the influence of nanostructuring upon radiation hardness, radiative properties, excitonic effects, resonant Raman scattering in wide bandgap semiconductors (GaN, ZnO, $Zn_xMg_{1-x}O$, $CuAl_xGa_{1-x}Se(S)_2$) have been established. The interdependence between radiative, photoelectric and electromechanic properties of nanostructured materials (ZnO, ZnS, CdS, GaN, Ga_2O_3 , TiO_2) and the characteristics of optical and pressure sensors on their basis has been determined.

PUBLICATIONS

- *More than 370 scientific papers, more than 260 of them in International Journals, 35 patents*

Books

- 4 books in English (two of them published by „Springer”).

Citations

- *h-index 34*

Reviewer of scientific journals Reviewer for international scientific journals, such as Physical Review B (APS); Applied Physics Letters (AIP); Journal of Applied Physics (AIP); Nanotechnology (IOP); Journal of Optics (IOP), Journal of Physics D: Appl. Phys. (IOP), Thin Solid Films (Elsevier), Optics Communications (Elsevier), Optical Materials (Elsevier), Physica B (Elsevier), Physica Status Solidi (Wiley), etc.

Participation in regional and international projects

1. Project Horizon 2020 - NanoMedTwin no 810652 "Promoting smart specialization at the Technical University of Moldova by developing the field of Novel Nanomaterials for BioMedical Applications through excellence in research and twinning" (2018-2021);
2. Project STCU no 6222 "Three-dimensional hierarchical hybrid nanoarchitectures based on graphitic aerogels and nanocrystalline semiconductor compounds for multifunctional applications" (2017-2019);
3. Project SCOPES-Swiss no IZ73Z0_152273/1 „Development and characterization of ultrathin membranes of GaN and related nitride materials for sensor and piezo/acoustophotonic applications" (2015-2017);
4. Project STCU no 5933 "Development of maskless lithography for three-dimensional nanostructuring of GaN" (2014-2015);
5. Project FP7- Mold-NanoNet no 294953 "Enhancing the capacities of the ELIRI Research Institute in applied research to enable the integration of Moldova in the European Research Area on the basis of scientific excellence" (2011-2014);
6. Project FP7- Mold-Era no 266515 "Preparation for Moldova's integration into the European Research Area and into the Community R&D Framework Programmes on the basis of scientific excellence" (2010-2013);
7. Project SCOPES-Swiss no Z73Z0 128047 "Nanopatterned materials for the improvement of terahertz quantum cascade lasers and laser-driven solid-state terahertz emitters", (2010-2012);
8. Project STCU no 4034 "Development of random lasers based on porous semiconductor compounds for photonic applications" (2007-2009);
9. Project INTAS no 05-104-7567 "Development of THz sources on nanostructured semiconductors and focusing elements on photonic crystals" (2006 – 2008);
10. Project CRDF-MRDA for purchase of technological equipment MERL-1301 "Purchase of a mask alignment and UV exposure lithography system" (2007-2008);
11. CRDF RESC mini-grant for purchase of equipment MOR2-1033-CH-03 (2004-2007);
12. Project CGP-CDRF no ME2-2527 "Development of optical frequency up-converters and dielectric mirrors based on nanostructured III-V compounds for integrated optoelectronic circuits" (2004 – 2006);
13. Project INTAS no 01- 0796 "Monolayered opalline superlattice: application to nano-technology of 2D ordered array of epitaxial nanodots and metalattice conductors" (2004 – 2005);
14. Project INTAS no 01- 0075 "Ferroelectrics templated in nanoporous membranes" (2004 – 2005);
15. Project BMBF-Germany "Submicrometer GaN Schottky diodes for THz Applications" (2002-2004);
16. Project BGP-CDRF no ME2-3013 "Phonon Engineering in III-V Nitrides for Device Applications" (2002 – 2004);
17. Project DFG-Germany "Nonlinear optical properties of nanostructured III-V compounds" (2000-2002).

Bilateral and national projects (2014-2023)

1. 20.80009.5007.20, " Nanoarchitectures on the basis of GaN and three-dimension matrices from biological materials for microfluidic and tissue engineering applications" (2020-2023) (State Program project);
2. 22.80013.5007.4BL "Nano- and hetero-structures based on zinc oxide and A³B⁵ semiconductor compounds for optoelectronic, photonic, and biosensor applications" (2022-2023) (bilateral project with Belarus);
3. 19.80013.50.07.02A/BL „Development and study of photoactive materials for short-wavelength spectral range on the basis of multicomponent oxide solid solutions" (2019-2020) (bilateral project with Belarus);
4. 16.80013.5007.08/Ro „Technologies for fabrication and application of two- and three-dimensional nanoparticles and nanoarchitectures on the basis of III-V semiconductors" (2016-2018) (bilateral project with Romania);
5. 15.817.02.08A „Nanostructured wide bandgap materials for optoelectronic and plasmonic devices" (2015-2018) (institutional project);
6. 16.00353.50.08A „Tree-dimensional nanostructures with piezoelectric and magnetic properties for living cell guiding in biological media" (2016-2017) (State Program project);
7. 15.820.18.02.05BE „ZnO:Al:RE active layers for solar cells" (2015-2016) (bilateral project with Belarus);
8. 14.518.02.03A „Magneto-electric sensors on the basis of nanocomposites from GaN piezoelectric and magneto-restrictive metals for applications" (2014-2015) (State Program project);
9. 11.817.05.09A „Multifunctional composite materials from semiconductors and semimetals on the basis of nanotemplates for thermoelectric, photovoltaic, spintronic and photonic devices" (2011-2014) (institutional project).

Books

1. *Nanostructures and Thin Films for Multifunctional Applications*. Ion Tiginyanu, Pavel Topala and Veaceslav Ursaki (Eds.). Springer, Germany (2016). 576 pages.
2. *Pressure-Induced Phase Transitions in AB_2X_4 Chalcogenide Compounds*. F. J. Manjon, I. Tiginyanu, and V. Ursaki (Eds.). Springer, Germany (2014). 345 pages.
3. *II-III₂VI₄ compounds under high pressure*. V. Ursaki, I.M Tiginyanu, and F.J. Manjon. Chişinău, AŞM, Moldova (2010). 168 pages. ISBN 978-9975969079.
4. *Porous III-V Semiconductors*. I. Tiginyanu, S. Langa, H. Föll and V. Ursaki. Stiinta, Chisinau (2005). 240 pages (see also online <http://www.porous-35.com/>).

Chapters in books

1. Template assisted formation of metal nanotubes.
 Ion Tiginyanu, Veaceslav Ursaki, and Eduard Monaico.
 In: Ion Tiginyanu, Pavel Topala and Veaceslav Ursaki (Eds.), *Nanostructures and Thin Films for Multifunctional Applications*. Springer, Germany, 2016. Chapter 15, pp. 473-506 (2016).
2. Nanostructures obtained using electric discharges at atmospheric pressure
 Pavel Topala, Alexandr Ojegov, Veaceslav Ursaki
 In: Ion Tiginyanu, Pavel Topala and Veaceslav Ursaki (Eds.), *Nanostructures and Thin Films for Multifunctional Applications*. Springer, Germany, 2016. Chapter 15, pp. 473-506 (2016).
3. Relation of II-III₂VI₄ compounds to other materials, their properties and applications.
 V. V. Ursaki and I. M. Tiginyanu.
 In: F. J. Manjon, I. Tiginyanu, and V. Ursaki (Eds.), *Pressure-Induced Phase Transitions in AB_2X_4 Chalcogenide Compounds*. Springer, Germany, 2014. Chapter 1, pp. 1-50 (2014).
4. II-III₂VI₄ compounds with other types of structures at high pressures.
 V. V. Ursaki and I. M. Tiginyanu.
 In: F. J. Manjon, I. Tiginyanu, and V. Ursaki (Eds.), *Pressure-Induced Phase Transitions in AB_2X_4 Chalcogenide Compounds*. Springer, Germany, 2014. Chapter 8, pp. 213-235 (2014).
5. Nanostructures of Metal Oxides.
 I.M. Tiginyanu, O. Lupan, V. V. Ursaki, L. Chow, and M. Enachi.
 In: P. Bhattacharya, R. Fornari, H. Kamimura (Eds.), *Comprehensive Semiconductor Science and Technology*, Vol. 3, pp. 396-479. Elsevier Science, Amsterdam, 2011.
6. Nanoimprint lithographic techniques for electronics applications.
 I.M. Tiginyanu, V. V. Ursaki and V. Popa.
 In: A. S. Hamdy Makhlof and I. Tiginyanu (Eds.), *Nanocoatings and Ultra Thin-Films*. Woodhead Publishing Limited, Abington Cambridge, UK, 2011. Chapter 10, pp. 280-329 (2011).
7. Ultra-thin membranes for sensor applications.
 I.M. Tiginyanu, V. V. Ursaki, and V. Popa.
 In: A. S. Hamdy and I. Tiginyanu (Eds.), *Nanocoatings and Ultra Thin-Films*. Woodhead Publishing Limited, Abington Cambridge, UK, 2011. Chapter 10, pp. 330-354 (2011).
8. Exciton Polariton Dispersion in Multinary Compounds.
 N. N. Syrbu and V.V. Ursaki
 In: Randy M. Bergin (Editor), *Exciton Quasiparticles: Theory, Dynamics and Applications*, Nova Science Publishers Inc., 2011.
9. High performance nanostructured semiconductor and metallo-dielectric layers for space applications.
 I.M. Tiginyanu, V.V. Ursaki, and E.V. Rusu.
 In: Abdel Salam Hamdy Makhlof (Editor), *High Performance Coatings for Automotive and Aerospace Industries*, pp. 141-227. Nova Science Publishers, New York, 2010.

1. Carrier traps in metalloid ion implanted InP and GaAs layers. All-Union Conference on Ion Beam Modification of Materials, Kaunas, May 16–17 (1989). Oral presentation.
2. Zn⁺/As⁺ and Zn⁺/Ar⁺ coimplantation in GaAs single crystals. *16th Edition of Annual Semiconductor Conference*, Sinaia (Romania), October 15-18, 1993. Oral presentation.
3. Raman characterization of Zn⁺ implanted GaAs single crystals coimplanted with As⁺ and Ar⁺ ions. *17th Edition of Annual Semiconductor Conference* Sinaia (Romania), October 11-16, 1994. Oral presentation.
4. Raman scattering study of Zn⁺/P⁺ co-implanted GaAs single crystals. *18th Edition of Annual Semicond. Conf.*, Sinaia (Romania), October 8-12, 1995. Oral presentation.
5. Raman and electrical characterization of n-InP implanted by 630 keV nitrogen. *8th Int. Conf. InP and Related Materials*, Schwäbisch Gmünd, Germany, April 21-25. Oral presentation.
6. Zn⁺/P⁺ and Zn⁺/As⁺ coimplantation in InP single crystals. *19th Edition of Annual Semicond. Conf.*, pp. 401-404. Sinaia (Romania), October 12-17, 1996. Oral presentation.
7. Temperature induced changes in optical properties of GaN layers grown on sapphire and 6H-SiC substrates. *3th Int. Conf. Microelectronics & Computer Sci.*, Chisinau 2002. Oral presentation.
8. Anomalous photoconductivity in n-type GaN. *3th Int. Conf. Microelectronics & Computer Sci.*, Chisinau 2002. Oral presentation.
9. Photoluminescence of Eu-doped ZnO structures, *Int. Conf. Inform. Technol.* Chisinau 2004. Oral presentation.
10. Exciton spectra, valence band splitting, and energy band structure of CuGa_xIn_{1-x}S₂ and CuGa_xIn_{1-x}Se₂. *14th Int. Conf. Ternary and Multinary Compounds*, Denver, Colorado, September 27-October 1, 2004. Oral presentation.
11. Novel luminescent materials based on disordered semiconductor and dielectric media. *16th Int. Conf. Ternary and Multinary Compounds*, Berlin, Germany, 15-19 September 2008. **Invited presentation.**
12. Lasing in ZnO nanostructures, Conferința Fizicienilor din Moldova, CFM-2009, Chisinau, Moldova, 26-27 noembrie 2009. **Plenary presentation.**
13. Pressure-induced phase transitions in AB₂X₄ chalcogenide compounds. *8th Int. Conf. Microelectronics and Computer Sci.*, Chisinau, Moldova, October 22-25, 2014. **Plenary presentation.**
14. Dialectica în viața și creația astrofizicianului Nicolae Donici. *8th Int. Conf. Microelectronics and Computer Sci.*, Chisinau, Moldova, October 22-25, 2014. Oral presentation.
15. On the systematics of hydrostatic pressure induced phase transitions in II-III₂-VI₄ compounds depending on their composition. *7th International Conference on Material Science and Condensed Matter Physics, Chișinău, Republic of Moldova*, 16-19 September, 2014. **Invited presentation.**
16. Random Lasers: 30 years of development, *3rd International conference on Nanotechnologies and Biomedical Engineering*, Humboldt Kolleg Section, 25 september 2015. Oral presentation.
17. Morphology, optical and luminescence properties of ZnO layers doped with Al and rare earth ions (Er, Eu, Sm, Yb). *8th International Conference on Material Science and Condensed Matter Physics, Chișinău, Republic of Moldova*, September 15, 2016. Oral presentation.
18. Pulsed Electroplating of Metal Nanoparticles from DODUCO Electrolytes, *9th International Conference on Microelectronics and Computer Science, Chișinău, Republic of Moldova*, October 19, 2017. Oral presentation.
19. Influence of Metal Deposition on Electrochemical Impedance Spectra of Porous GaP and GaN Semiconductors, *Proc. 9th International Conference on Microelectronics and Computer Science, Chișinău, Republic of Moldova*, October 19, 2017. Oral presentation.
20. Preparation and characterization of thin films in the ZnSnO system, *Proc. 6th Int. Conf. ICTEI 2018*, Chisinau, 24-27 May 2018, pp. 133-136. Oral presentation.
21. WO₃/WS₂ composite materials for gas sensor and energy storage applications. *9th International Conference on Materials Science and Condensed Matter Physics*, September 25–28, 2018, Chișinău, Moldova. **Invited presentation.**
22. ZnMgO based UV detectors for various applications. *Int. Conf. on Nonproliferation and Dual use awareness, CONDENS_E 2019*, 28-30 August, Ypres, Belgium.
23. Hybrid flexible nanocomposite materials for sensor applications. *Seminarul Național de Nanoștiință și Nanotehnologie (SNN-ediția 18)*, 24-25 October, 2019. Oral presentation.
24. Semiconductor-carbonaceous hybrid lightweight nanocomposite materials for sensor applications. *ModTech2020 International Conference*, June 24-27, 2020, Eforie Nord, Romania. Oral presentation.