

Vladimir V. Zavalniuk

(Info)

Personal:

First Name: Vladimir (Volodymyr)
Middle Name (Father's): Viktorovich
Last Name: Zavalniuk
Date and Place of Birth: 20 March 1985, Odessa, Ukraine
Citizenship: Ukraine
Address: Department of Theoretical Physics, Physics Faculty,
Odessa I.I. Mechnikov National University
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Odessa 65026
Ukraine
E-mail: VZavalnyuk@onu.edu.ua
Spoken Languages: English, Russian (native), Ukrainian (native)

Educational Training

- 01 Sep 2001 – **Bachelor of Science in Physics**
31 Jun 2005 Diploma with Honors in Theoretical Physics
Odessa I.I. Mechnikov National University, Odessa (Ukraine)
- 01 Sep 2005 – **Master of Science in Theoretical Physics**
30 Jun 2006 Diploma with Honors in Theoretical Physics
Department of Theoretical Physics
Odessa I.I. Mechnikov National University, Odessa (Ukraine)
- 15 Oct 2006 – PhD program in Physics and Mathematics, specialization in Theoretical Physics
15 Oct 2009 Supervisor: Prof. Dr.Sc. Vadym Adamyan.
Department of Theoretical Physics
Odessa I.I. Mechnikov National University, Odessa (Ukraine)
- 21 Dec 2012 **Ph.D. in Physics and Mathematics, specialization in Theoretical Physics**
Title of the Thesis:
Vibrational excitations in graphene and carbon nanotubes with point defects.
Supervisor: Prof. Dr.Sc. Vadym Adamyan.
Department of Theoretical Physics
Odessa I.I. Mechnikov National University, Odessa (Ukraine)

Additional Education:

- 18 Dec 2013 [edX MITx certificate](#)
7.00x: Introduction to Biology - The Secret of Life, by Eric S. Lander
- 28 Mar 2014 [edX MITx certificate](#)
CS1156x: Principles of Economics with Calculus, by Antonio Rangel
- 8 May 2014 [edX UTAustinX certificate](#)
UT.9.01x: Effective Thinking Through Mathematics
- 04 Jun 2014 [edX UTAustinX certificate](#)
UT.5.01x: Linear Algebra – Foundations to Frontiers, by Robert van de Geijn

- 06 Jul 2014 [edX UQx certificate](#)
BIOIMG101x: Introduction to Biomedical Imaging
- 29 Aug 2014 [edX MITx certificate](#)
3.091x_2: Introduction to Solid State Chemistry, by Michael J. Cima
- 30 Mar 2015 [edX RiceX certificate](#)
PHYS102x: Electricity & Magnetism, Part 1
- 9 Apr 2015 [edX ANUx certificate](#)
SPU30x: Super-Earths and Life
- 20 Apr 2015 [edX UChicagoX certificate](#)
PS280x: Modeling Climate Change
- 11 May 2016 [edX ANUx certificate](#)
ANU-ASTRO4x: Cosmology
- 16 Aug 2019 International Teacher Weeks Programme 2019 ([ITW2019](#)),  CERN, Geneva

Scientific Interests:

Classical Mechanics, Condensed Matter, Nanoscale Physics, Quantum Theory;
Data Compression; Computational Phylogenetics; Laser Dermatology and Surgery.

Skills and Experience:

Theoretical Physics, Mathematics, Programming (Delphi, C++), Numerical Methods, AI, Mathematical Software, MS Excel.

Teaching Experience:

(Department of Physics, Odessa I.I. Mechnikov National University, Odessa, Ukraine)

- Classical Mechanics, 2006-2007, 2012-2013.
- Methods of Mathematical Physics, 2006-2012.
- Quantum Mechanics, 2007-2011.
- Mathematics of Finance, 2013-2014.
- Quantum Information Theory, 2017.

(Department of Fundamental Sciences, Odessa Military Academy, Odessa, Ukraine)

- General Physics, 2015-2019.
- Organizational informatics, 2016-2017.

(Private school “Nika-M”, Odessa, Ukraine)

- Physics, 2007-2009.

Organizational / managerial experience:

- Member of organizing committee of the International Conference “Modern Analysis and Applications” (MAA 2007) dedicated to the centenary of Mark Krein, April 9–14, 2007, Odessa, Ukraine.
- Member of organizing committee of the International Symposium “Physics of Complex Fluids” in Memory of Alexander Vsevolodovich Zatovsky (1942-2006), June 6, 2012, Odessa, Ukraine.

Scientific publications:

- V. Adamyan and V. Zavalniuk. *Phonons in graphene with point defects*. J. Phys.: Condens. Matter **24**, p.015402 (10pp.) (2011);
- V. Zavalniuk and S. Marchenko. *Theoretical analysis of telescopic oscillations in multi-walled carbon nanotubes*. Low. Temp. Phys. **37**, p.337-42 (6pp.) (2011);

- V. Adamyan and V. Zavalniuk. *Lattice thermal conductivity of graphene with conventionally isotopic defects*. J. Phys.: Condens. Matter **24**, p.415401 (7pp.) (2012);
- V. Zavalniuk. *Axial stiffness of multiwalled carbon nanotubes as a function of the number of walls*. Ukr. J. Phys. **57**, p.933-9 (7pp.) (2012);
- S.S. Kryzhanovsky and V. Zavalniuk. Effect of foaming on the pool boiling heat flux for isobutane-“Azmol” solutions. Refrigeration engineering and technology **139**, p.25-9 (5pp.) (2012);
(С.С. Крыжановский, В.В. Завальнюк. Влияние пенообразования на интенсивность теплообмена при кипении растворов изобутан-«Азмол» в большом объеме. Холодильная техника и технология **139**, стр. 25-9 (5 стр.) (2012));
- V.M. Adamyan, V.N. Bondarev and V.V. Zavalniuk. *Bending sound in graphene: Origin and manifestation*. J. Physics Letters A **380** pp.3732-7, (2016);
- V.N. Bondarev, V.M. Adamyan and V.V. Zavalniuk. *Bending mode and thermal expansion of graphene*. Phys. Rev. B **97**, 035426 (9 pp.), (2018);
- V.M. Adamyan, V.N. Bondarev and V.V. Zavalniuk. *Graphene thermal break-down induced by anharmonic bending mode*. J. Phys.: Condens. Matter **31** 465401 (13pp), (2019).

Books and book chapters:

- V. Tsepkoenko, V. Zavalniuk, K. Karpenko and S. Kadochnikov. *Lasers in dermatology and cosmetology*. (In “Course of plastic surgery: Guide for Physicians”, two volumes, ed. K.P. Phenisnov; ISBN 978-5-88697-193-4, 978-5-88697-195-8; Yaroslavl, Rybinsk, 2010); Vol. 1, pp.305-346.
(В.А. Цепколенко, В.В. Завальнюк, Е.С. Карпенко, С.В. Кадочников. Лазеры в дерматологии и косметологии. Курс пластической хирургии: руководство для врачей, в двух томах, под редакцией К.П. Пшениснова; "Рыбинский дом печати"; ISBN 978-5-88697-193-4, 978-5-88697-195-8. Ярославль, Рыбинск, 2010. Том 1, стр. 305-346.)
- V. Drozdov, M. Drozdov, V. Zavalniuk, Yu. Krasny. *Physics. Practical course for independent learning and maintaining of educational competency*. Odessa Military Academy: 2018.
(Дроздов В.О., Дроздов М.О., Завальнюк В.В., Красний Ю.П. Фізика. Практичний курс для самостійної роботи та підтримання освітніх компетенцій. Одеса: Військова академія, 2017.)
- V. Zavalniuk, D. Panchenko, A. Nimich, O. Serhunova, Yu. Krasny. *Physics: Practical course*. Odessa Military Academy: 2018.
(Завальнюк В.В., Панченко Д.Ю., Німич А.В., Сергунова О.Д., Красний Ю.П. Фізика: практичний курс. Одеса: Військова академія, 2018.)

Participation in Conferences:

- Young Scientists Conference on Physics of Semiconductors “Lashkaryov readings”, April 25-27, 2007, Kyiv, Ukraine;
 - ◆ V. Zavalniuk. *Phonon contribution to electric resistance of carbon nanotubes* (Фононный вклад в сопротивление углеродных нанотрубок). Abstracts: Kiev, 2007. – P.29;
- III Ukrainian Scientific Conference on Physics of Semiconductors (USCPS-3) with international participation, June 17-22, 2007, Odessa, Ukraine;
 - ◆ V. Zavalniuk. *Electronic properties of metal-filled carbon nanotubes* (Електронні властивості вуглецевих нанотрубок із прониклими атомами домішки). Abstracts: Odessa, 2007. – P. 257;
- International Students and Young Scientists Conference “HEUREKA-2008”, May 19-21, 2008, Lviv, Ukraine;
 - ◆ V. Zavalniuk. *Phonon spectra of chiral carbon nanotubes is coprime indices* (Фононні спектри хіральних вуглецевих нанотрубок із взаємно-простими індексами). Abstracts: Lviv, 2008. – P. A7;

- Physics and Technology of Thin Films and Nanosystems, XII International Conference, May 18-23, 2009, Ivano-Frankivsk, Ukraine;
 - ◆ V. Zavalniuk, S. Marchenko. *Telescopic oscillation in multi-walled carbon nanotubes (Телескопічні коливання в системі вкладених вуглецевих нанотрубок)*. Abstracts: Ivano-Frankivsk, 2009. – Vol. 1, P. 303;
 - ◆ S. Marchenko, V. Zavalniuk. *Radial and rotational oscillations in double-walled nanotubes (Радіальні та обертові коливання в системі двостінкових нанотрубок)*. Abstracts: Ivano-Frankivsk, 2009. – Vol. 1, P. 422;
- Modern Problems of Theoretical Physics, December 24-26, 2009, Kiev, Ukraine;
 - ◆ V.V. Zavalniuk. *Oscillation spectra in harmonic approximation for ideal and non-ideal graphene*. Abstracts: Kiev, 2009. – P. 44;
 - ◆ S.V. Marchenko, V.V. Zavalniuk, Ye.V. Koskin. *Statistical methods in computational phylogenetics*. Abstracts: Kiev, 2009. – P. 69;
- Modern Problems of Theoretical Physics, December 22-24, 2010, Kiev, Ukraine.
 - ◆ V. Zavalniuk. *Influence of different types of defects on the graphene and carbon nanotubes phonon spectra*. Abstracts: Kiev, 2010. – P. 41;
 - ◆ V. Zavalniuk, S. Marchenko. *Density of electronic states of the carbon nanocones and the finite graphene cluster*. Abstracts: Kiev, 2010. – P. 33.