

# CURRICULUM VITAE

**Family name:** Vaneeva

**Given name:** Olena

**Address:**

Department of Applied Research

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**Date of Birth:** 28.06.1982

**Citizenship:** Ukrainian

**Field of Research:** Group-theoretical analysis of nonlinear PDEs; symmetry, reduction and exact solutions of nonlinear PDEs; potential and nonclassical symmetries of PDEs; conservation laws of PDEs.

**Academic degrees:**

*Ph.D. in Mathematical Physics*, Institute of Mathematics of the National Academy of Sciences of Ukraine (2008)

Ph.D. thesis: Group classification and nonclassical symmetries of reaction–diffusion equations

Supervisor: Professor R.O. Popovych

*Master Sc. in Mathematics*, Dnipropetrovsk National University (2004)

Master thesis: Nonlocal symmetries of the Born–Infeld Equation

Supervisor: Professor V.A. Tychynin

*Bachelor Sc. in Mathematics*, Dnipropetrovsk National University (2003)

Bachelor thesis: The solution of heat conductivity problem in the cylindrical pipe with given temperature on boundaries

Supervisor: Professor V.A. Ostapenko

**Professional experience:**

2010      Researcher at the Department of Applied Research of the Institute of Mathematics of the National Academy of Sciences of Ukraine

2007 – 2010 Junior Researcher at the Department of Applied Research of the Institute of Mathematics of the National Academy of Sciences of Ukraine

### **Education:**

11.2004–10.2007 Post-graduate study at the Department of Applied Research of the Institute of Mathematics of the National Academy of Sciences of Ukraine (Supervisor: Professor R.O. Popovych)

09.1999–06.2004 Dnipropetrovsk National University, Faculty of Mathematics and Mechanics, Department of Differential Equations

09.1989–06.1999 Dnipropetrovsk High School no. 8 (High School Diploma with Distinction)

### **Teaching activity:**

2004 Teacher of mathematics, Dnipropetrovsk school no. 29

## **Publications**

### **Publications in referred journals:**

1. Olena Vaneeva, Lie symmetries and exact solutions of variable coefficient mKdV equations: an equivalence based approach, *Commun Nonlinear Sci Numer Simulat* **17** (2012) 611–618.
2. R.O. Popovych, O.O. Vaneeva, More common errors in finding exact solutions of nonlinear differential equations: Part I, *Commun Nonlinear Sci Numer Simulat* **15** (2010) 3887–3899.
3. O.O. Vaneeva, R.O. Popovych, C. Sophocleous, Enhanced group analysis and exact solutions of variable coefficient semilinear diffusion equations with a power source, *Acta Appl. Math.* **106** (2009) 1–46.
4. N.M. Ivanova, R.O. Popovych, C. Sophocleous and O.O. Vaneeva, Conservation laws and hierarchies of potential symmetries for certain diffusion equations, *Physica A* **388** (2009) 343–356.
5. R.O. Popovych, C. Sophocleous and O.O. Vaneeva, Exact solutions of a remarkable fin equation, *Appl. Math. Lett.* **21** (2008) 209–214.
6. O.O. Vaneeva, A.G. Johnpillai, R.O. Popovych and C. Sophocleous, Group analysis of nonlinear fin equations, *Appl. Math. Lett.* **21** (2008) 248–253.

7. O.O. Vaneeva, A.G. Johnpillai, R.O. Popovych and C. Sophocleous, Enhanced group analysis and conservation laws of variable coefficient reaction-diffusion equations with power nonlinearities, *J. Math. Anal. Appl.* **330** (2007) 1363–1386.
8. R.O. Popovych, O.O. Vaneeva and N.M. Ivanova, Potential nonclassical symmetries and solutions of fast diffusion equation, *Phys. Lett. A* **362** (2007) 166–173.

### Publications in Proceedings:

1. O.O. Vaneeva, R.O. Popovych and C. Sophocleous, Reduction operators of variable coefficient semilinear diffusion equations with an exponential source, *Proceedings of 5th International Workshop “Group Analysis of Differential Equations and Integrable Systems”* (June 6–10, 2010, Protaras, Cyprus) (2011) 207–219; arXiv:1010.2046.
2. O.O. Vaneeva, R.O. Popovych and C. Sophocleous, Reduction operators of variable coefficient semilinear diffusion equations with a power source, *Proceedings of 4th International Workshop “Group Analysis of Differential Equations and Integrable Systems”* (October 26–30, 2008, Protaras, Cyprus) (2009) 191–209; arXiv:0904.3424.
3. Olena Vaneeva, Group classification via mapping between classes: an example of semilinear reaction-diffusion equations with exponential nonlinearity, *Proceedings of the 5th Mathematical Physics Meeting: Summer School and Conf. on Modern Mathematical Physics* (July 6–17, 2008, Belgrade, Serbia) (2009) 463–471; arXiv:0811.2587.
4. O.O. Vaneeva. Group classification of variable coefficient reaction–diffusion equations with quadratic nonlinearity, in Symmetry and Integrability of Equations of Mathematical Physics (Dedicated to the 70-th Anniversary of Professor W.I. Fushchych), Boyko V.M., Nikitin A.G. and Popovych R.O. (Editors), *Collection of Works of Institute of Mathematics*, Kyiv, 2006, V.3, N 2, 49–62 (in Ukrainian).
5. Olena Vaneeva, Reduction operators of nonlinear filtration equation, *Proceedings of the VI International Workshop “Lie theory and its application to physics”* (15–21 August, 2005, Varna, Bulgaria), *Bulg. J. Phys.* **33(s2)** (2006) 227–230.

6. Tychynin V.A., Vaneeva O.O., Reduction and some exact solutions of the threedimensional Born-Infeld equation, *Differential equations and their applications: Proceedings of Dnipropetrovsk National University*, Dnipropetrovsk National University, 2005, 116–122 (in Ukrainian).

### Conferences and Schools:

1. IX International Workshop “Lie Theory and Its Applications in Physics” (2011, June 20–26, Varna, Bulgaria);
2. Fifth Workshop “Group Analysis of Differential Equations and Integrable Systems” (2010, June 6–10, Protaras, Cyprus);
3. Eighth International Conference “Symmetry in Nonlinear Mathematical Physics” (2009, June 21–27, Institute of Mathematics, Kyiv, Ukraine);
4. Forth Workshop “Group Analysis of Differential Equations and Integrable Systems” (2008, October 26–30, Protaras, Cyprus);
5. II International School on Modern Trends in Mathematical Physics (2008, September 6–11, Varna, Bulgaria);
6. 5th Mathematical Physics Meeting “Summer School and Conference on Modern Mathematical Pysics” (2008, July 6–17, Institute of Physics, Belgrade, Serbia);
7. Third Workshop “Group Analysis of Differential Equations — Integrable Systems” (2007, October 4–5, University of Cyprus, Nicosia, Cyprus);
8. Seventh International Conference “Symmetry in Nonlinear Mathematical Physics” (2007, June 24–30, Institute of Mathematics, Kyiv, Ukraine);
9. Conference “Symmetry and integrability of equations of mathematical physics” (2006, December 16–18, Kyiv, Ukraine);
10. Workshop “Ukrainian school of group analysis of differential equations” (2006, December 5–6, Poltava, Ukraine);

11. Second Workshop “Group Analysis of Differential Equations — Integrable Systems” (2006, September 25–28, University of Cyprus, Nicosia, Cyprus);
12. Workshop “Group Analysis of Differential Equations — Integrable Systems” (2005, October 27, University of Cyprus, Nicosia, Cyprus);
13. IV International Symposium “Quantum Theory and Symmetries” (2005, August 15–21, Varna, Bulgaria);
14. Sixth International Conference “Symmetry in Nonlinear Mathematical Physics” (2005, June 20–26, Institute of Mathematics, Kyiv, Ukraine).

Regular research Seminars of the Department of Applied Research of the Institute of Mathematics of NAS of Ukraine (Kyiv, Ukraine)

**Short scientific visits:**

2011, January 15–22, Department of Mathematics and Statistics, University of Cyprus, Nicosia, Cyprus;

2010, October 17–21, Department of Mathematics and Statistics, University of Saskatchewan, Saskatoon, Canada;

2007, October 2–20, Department of Mathematics and Statistics, University of Cyprus, Nicosia, Cyprus;

2006, September 17–October 10, Department of Mathematics and Statistics, University of Cyprus, Nicosia, Cyprus;

2006, April 24–May 24, Jacob Blaustein Institute for Desert Research, Ben-Gurion University, Sede-Boker Campus, Israel;

2005, October 8–21, Department of Mathematics and Statistics, University of Cyprus, Nicosia, Cyprus.

**Awards:** 2010 Prize of the President of Ukraine for young scientists for the series of papers “Algebraic methods in mathematical physics” (Jointly with Maryna Nesterenko).

**Research grants:**

2008–2009 Grant of the President of Ukraine for young scientists GP/F26/0005

2005–2006 Grant of the President of Ukraine for young scientists GF/F11/0061

**Referee:**

- Acta Applicandae Mathematicae
- Applied Mathematics and Computation
- Applied Mathematics Letters
- Journal of Mathematical Physics
- Journal of Mathematical Analysis and Applications
- Journal of Physics A: Mathematical and Theoretical
- Journal of the Franklin Institute
- Physica A
- Physics Letters A
- Symmetry, Integrability and Geometry: Methods and Applications (SIGMA)

**Other activities:**

- Organization of the sixth, seventh and eighth International Conferences “Symmetry in Nonlinear Mathematical Physics” (Kyiv, Ukraine)
- Organization of the first–sixth Workshops “Group Analysis of Differential Equations and Integrable Systems” (Nicosia and Protaras, Cyprus)
- Reviewer of Mathematical Reviews (MathSciNet)
- Reviewer of Mathematical Zenterblatt

**Languages:** English, Russian and Ukrainian