

## PERSONAL INFORMATION



IGOR PARASYUK

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<https://scholar.google.com/citations?user=HknT3y0AAAAJ>  
<https://www.scopus.com/authid/detail.uri?authorId=16430162800>

Sex Male | Date of birth 18/01/1953 | Nationality Ukraine

Languages Ukrainian (native), English

## AFFILIATION

Integral and Differential Equations Department,  
Mechanics and Mathematics Faculty

## SCIENTIFIC INTERESTS

Theory of multifrequency nonlinear oscillations and invariant manifolds, analysis of nonlinear systems on manifolds, dynamical bifurcations, nonlinear singular boundary value problems on infinite intervals for ordinary differential equations.

## WORK EXPERIENCE

23.11.1978 – 08.04.1986

### Assistant Professor

Integral and Differential Equations Department, Mechanics and Mathematics Faculty, Kyiv State University

08.04.1986 – 01.09.1991,  
01.09.1994 – 04.03.1996

### Associate Professor

Integral and Differential Equations Department, Mechanics and Mathematics Faculty, Taras Shevchenko University of Kyiv

05.03.1996 – 06.07.2016

### Professor

Integral and Differential Equations Department, Mechanics and Mathematics Faculty, Taras Shevchenko National University of Kyiv

07.07.2016 – 18.01.2017

### Acting Head of Department

Geometry, Topology and Dynamical Systems Department, Mechanics and Mathematics Faculty, Taras Shevchenko National University of Kyiv

19.01.2017 – 18.01.2022

### Head of Department

Geometry, Topology and Dynamical Systems Department, Mechanics and Mathematics Faculty, Taras Shevchenko National University of Kyiv

19.01.2022 – 31.05.2022

### Professor

Geometry, Topology and Dynamical Systems Department, Mechanics and Mathematics Faculty, Taras Shevchenko National University of Kyiv

31.05.2022 – Present

### Professor

Integral and Differential Equations Department, Mechanics and Mathematics Faculty, Taras Shevchenko National University of Kyiv

## EDUCATION AND DEGREES

1970 – 1975

### Student

Department of Integral and Differential Equations, Mechanics and Mathematics Faculty, Kyiv State University

1975 – 1978

### Postgraduate Student

Department of Integral and Differential Equations, Mechanics and Mathematics Faculty, Kyiv State University

28/05/1978

### Candidate of Physical and Mathematical Sciences (PhD)

PhD in Mathematics, Kyiv State University

Thesis: "Constructing and studying quasiperiodic solutions for some classes of differential equations", Diploma FM № 008287

01/09/1991 – 31/08/1994

**Doctoral student**

Department of Integral and Differential Equations, Mechanics and Mathematics Faculty, Taras Shevchenko University of Kyiv

21/03/1995

**Doctor of Science (Dr. Sci.)**

Habilitation in Mathematics at the Institute of Mathematics of National Academy of Sciences of Ukraine

Thesis "Coisotropic invariant tori of Hamiltonian systems", Diploma DN № 001727

**AWARDS**

1982

Award of the Academy of Sciences of Ukraine for young scientists for the work "Periodic, quasi- and almost periodic solutions of differential equations"

2012

State prize of Ukraine in the field of Education

**FELLOWSHIPS AND SHORT-TERM VISITS**

01/09/2014 – 29/11/2014

Research Fellowship at Institute of Mathematics of National Academy of Sciences of Ukraine, Department of Differential Equations and Oscillation Theory

01/02/2021 – 31/03/2021

Research Fellowship at Institute of Mathematics of National Academy of Sciences of Ukraine, Department of Differential Equations and Oscillation Theory

**MEMBERSHIPS**

2010 – Presents

Specialized Academic Councils for the defense of candidate and doctoral dissertations at Taras Shevchenko National University of Kyiv (member)

2017 – Present

Specialized Academic Councils for the defense of candidate and doctoral dissertations at the Institute of Mathematics of the National Academy of Sciences of Ukraine (member)

2005 – Present

"Bulletin of Taras Shevchenko National University of Kyiv, Ser. Mathematics, Mechanics" (member of the Editorial board)

2010 – Present

"Ukrainian Mathematical Journal" (member of the Editorial board)

2011 – Present

Academy of Sciences of the Higher School of Ukraine (member)

2005 – Present

American Mathematical Society (member)

2007 – Present

Kyiv Mathematical Society (member)

**TEACHING COURSES**

Taras Shevchenko National University of Kyiv

- Differential equations
- Geometry of dynamical systems
- Dynamical systems
- Qualitative and analytical methods of studying differential equations
- Analytic-geometrical methods of analysing nonlinear differential equations
- Studies in Mathematics
- Mathematics-1
- Differential equations and their applications

**LIST OF SELECTED PUBLICATIONS OF IGOR PARASYUK****Textbooks:**

1. Samoilenko A.M., Perestyuk M. O. and Parasyuk I. O. Differential equations: Textbook. Almaty, 2012.
2. Parasyuk I. O. Perestyuk M. O. Local Analysis of Nonlinear Differential Equations. Kamyanets-Podilskyi. Axioma, 2013.
3. Parasyuk I. O. Introduction to the Qualitative Theory of Differential Equations. Kyiv, Kyiv University Press, 2005.

**Selected papers in Journals:**

1. Parasyuk I.O., Protsak L.V. Existence and asymptotic properties of the solution of a nonlinear boundary-value problem on the real axis // *Journal of Mathematical Sciences*. 2022. Vol. 263, no. 2. P. 248-257.
2. Luchko A., Parasyuk I. Asymptotic phase for flows with exponentially stable partially hyperbolic invariant manifolds// *Electronic Journal of Qualitative Theory of Differential Equations*. 2021. No. 36. P. 1–28.
3. Parasyuk I. Landau–Kolmogorov type inequalities for curves on Riemannian manifolds // *Mathematical Inequalities and Applications*. 2019.Vol. 22, no. 2. P. 433–443.
4. Parasyuk, I. O. Quasiperiodic Forced Oscillations of a Solid Body in the Field of a Quadratic Potential // *Journal of Mathematical Sciences*. 2019. Vol. 240, no. 3. P. 323–341.
5. Parasyuk I. O. Hyperbolic quasiperiodic solutions of U-monotone systems on Riemannian manifolds // *Dynamics of Continuous, Discrete and Impulsive Systems, Series A: Mathematical Analysis*. 2019. Vol. 26, no. 1. P. 21–52.
6. Parasyuk I., Repeta B. Dynamical bifurcation in a system of coupled oscillators with slowly varying parameters// *Electronic Journal of Differential Equations*. 2016.Vol. 2016, no. 233.P. 1–32.
7. Parasyuk I. Quasiperiodic Extremals of Nonautonomous Lagrangian Systems on Riemannian Manifolds // *Ukrainian Mathematical Journal*. 2015. Vol. 66, no. 10. P. 1553–1574.
8. Samoilenko A. M., Parasyuk I. O., Repeta B. V. Dynamical bifurcation of multifrequency oscillations in a fast-slow system // *Ukrainian Mathematical Journal*. 2015.Vol. 67, no. 7. P. 1008–1037.
9. Lahoda V., Parasyuk I. Theorem on the existence of an invariant section over  $\mathbb{R}^m$  for the indefinite monotone system in  $\mathbb{R}^n$  // *Ukrainian Mathematical Journal*.2013.Vol. 65, no. 1. P. 114–131.
10. Samoilenko A. M., Parasyuk I.O., Lahoda V.A. Lipschitz invariant tori of indefinite-monotone systems// *Ukr Math J*. 2012. Vol. 64. P. 408–432.
11. Parasyuk I., Rustamova A. Variational approach for weak quasiperiodic solutions of quasiperiodically excited Lagrangian systems on Riemannian// *Electronic Journal of Differential Equations*. 2012.Vol. 2012, no. 66. P. 1–22.
12. Vakal Yu. E., Parasyuk I. O. Estimation of the number of ultrasubharmonics for a twodimensional almost autonomous Hamiltonian system periodic in time// *Ukrainian Mathematical Journal*. 2012. Vol. 64, no. 4.P. 525–554.
13. Vakal Yu. E., Parasyuk I. O. Estimate for the number of perturbed ultrasubharmonics of a system with one and a half degrees of freedom close to a Hamiltonian // *Nonlinear Oscillations*. 2011.Vol. 14, no. 2. P. 149–186.
14. Horishna Yu., Parasyuk I., Protsak L. Integral representation of solutions to boundary-value problems on the half-line for linear ODEs with singularity of the first kind // *Electronic Journal of Differential Equations*. 2008. Vol. 2008.
15. Denysenko O. M., Parasyuk I. O. Construction of the boundaries of instability zones for the quasiperiodic Schrödinger equation with trigonometric potential// *Nonlinear Oscillations*. 2007. Vol. 10, no. 1. P. 78–87.
16. Loveikin, Yu. V. Parasyuk I. O. Invariant tori of locally Hamiltonian systems close to conditionally integrable systems// *Ukrainian Mathematical Journal*. 2007.Vol. 59, no. 1. P. 70–99.
17. Loveikin Yu V., Parasyuk I. O. Bifurcation of coisotropic invariant tori under locally Hamiltonian perturbations of integrable systems and nondegenerate deformation of symplectic structure // *Nonlinear Oscillations*. 2006.Vol. 9, no. 2.P. 215–225.
18. Loveikin Yu. V., Parasyuk I. O. Theorem on perturbation of coisotropic invariant tori of locally Hamiltonian systems and its applications // *Nonlinear Oscillations*. 2005.Vol. 8, no. 4.P. 487–512.
19. Denysenko O. M., Parasyuk I. O. Construction of Floquet–Bloch Solutions and Estimation of Lengths of Resonance Zones of One-Dimensional Schrödinger Equation with Smooth Potential // *Ukrainian Mathematical Journal*. 2004.Vol. 56, no. 1. P. 1–21.
20. Parasyuk I. O., Pozur S. V. Singular Nonlinear Eigenvalue Problem for a Second-Order Differential Equation with Energy Dissipation // *Nonlinear Oscillations*.2002.Vol. 5, no. 3. P. 338–359.
21. Kubichka A. A., Parasyuk I. O. Bifurcation of a Whitney-smooth family of coisotropic invariant tori of a Hamiltonian system under small deformations of a symplectic structure // *Ukrainian Mathematical Journal*. 2001.Vol. 53, no. 5.P. 701–718.
22. Zakharin S. F., Parasyuk I. O. Generalized and classical almost periodic solutions of Lagrangian systems // *Funkcialaj Ekvacioj Serio Internacia*. 1999. Vol. 42, no. 3. P. 325– 338.
23. Parasyuk I. O. Bifurcation of a Cantor set of coisotropic invariant tori of Hamiltonian systems under perturbation of symplectic structure // *Nelin. Kolyvannya*.1998.Vol. 1, no. 2.P. 81–89.
24. Samoilenko A. M., Parasyuk I. O. Nilpotent flows of  $S^1$ -invariant Hamiltonian systems on 4-dimensional symplectic manifolds // *Ukrainian Mathematical Journal*.1997.Vol. 49, no. 1. P. 135–155.

25. Parasyuk, I. O. Reduction and coisotropic invariant tori of Hamiltonian systems with non-poisson commutative symmetries. I, II // Ukrainian Mathematical Journal.1994.Vol. 46, no. 5. P. 572–580, no. 7.P. 991–1002.
26. Parasyuk I. O. Variables of the action-angle type on symplectic manifolds stratified by coisotropic tori // Ukrainian Mathematical Journal.1993.Vol. 45, no. 1. P. 85–93.
27. Parasyuk I. O. Coisotropic invariant tori of Hamiltonian systems of the quasiclassical theory of motion of a conduction electron // Ukrainian Mathematical Journal.1990.Vol. 42, no. 3. P. 308–312.
28. Parasyuk I. O. Conservation of multidimensional invariant tori of Hamiltonian systems // Ukrainian Mathematical Journal. 1984. Vol. 36, no. 4. P. 380–385.
29. Parasyuk I. O. Conservation of quasi-periodic movements of reversible multifrequency systems // Dopovidi Akademii Nauk Ukrainskoi RSR seriya a-fiziko-matematichni ta technichni nauki.1982. no. 9. P. 18–21.
- 30.** Parasyuk I. O. Zones of instability of the Schrödinger equation with a smooth quasiperiodic potential // Ukrainian Mathematical Journal.1978.Vol. 30, no. 1. P. 50–56.