

# Dr. Vitalii Marchenko

*Curriculum Vitae*

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PhD, Researcher, ILTPE of NASU



## Education

- 2006–2010 **Bachelor of Applied Mathematics**, *Karazin Kharkiv National University, Kharkiv, Faculty of Mathematics and Mechanics.*
- 2010–2011 **Master of Applied Mathematics, Second speciality – Teacher, Lecturer of Mathematics and Computer Science**, *Karazin Kharkiv National University, Kharkiv, Faculty of Mathematics and Mechanics.*  
Diploma with Honours

## PhD thesis

- title *On spectral basis properties of operators of evolution equations*
- supervisor Prof. Grigory Sklyar, Institute of Mathematics, University of Szczecin, Poland, Karazin Kharkiv National University, Ukraine
- date, place 23 September 2016, Karazin Kharkiv National University

## Experience

- 2011–2015 **Lecturer**, *Karazin Kharkiv National University, Faculty of Mathematics and Mechanics, Kharkiv.*
- 2013–2014 **Junior researcher**, *Karazin Kharkiv National University, Faculty of Mathematics and Mechanics, Kharkiv.*
- 2015–2017 **Junior researcher**, *Mathematical Division, B. Verkin Institute for Low Temperature Physics and Engineering of the National Academy of Sciences of Ukraine, Kharkiv.*
- Since June 2017 **Researcher**, *Mathematical Division, B. Verkin Institute for Low Temperature Physics and Engineering of the National Academy of Sciences of Ukraine, Kharkiv.*

## Courses taught

**Methods of functional analysis in control theory**  
**Problems of functional analysis**  
**Riesz bases**

## Profiles on the Web

**Google Scholar**, <https://scholar.google.com.ua/citations?user=V8J2u8AAAAAJ&hl=uk>.

**ResearchGate**, [https://researchgate.net/profile/Vitalii\\_Marchenko](https://researchgate.net/profile/Vitalii_Marchenko).

**Web of Science**, ResearcherID Q-8147-2019.

## Languages

Ukrainian **native speaker**

Russian **native speaker**

English **fluent**

## Research interests

- $C_0$ -semigroups and evolution equations
- Spectral theory of nonselfadjoint operators
- Banach spaces and Schauder decompositions
- Spectral methods in an infinite-dimensional linear systems theory

## Publications

- [1] V. Marchenko, Isomorphic Schauder decompositions in certain Banach spaces, *Open Mathematics (formerly Central European Journal of Mathematics)*, November 2014, 12(11), pp. 1714-1732.
- [2] V. Marchenko, Stability of Riesz bases, *Proc. Amer. Math. Soc.*, August 2018, 146(8), pp. 3345-3351.
- [3] V. Marchenko, Stability of unconditional Schauder decompositions in  $\ell_p$  spaces, *Bull. Aust. Math. Soc.*, December 2015, 92(3), pp. 444-456.
- [4] V. Marchenko, Stability of unconditional Schauder decompositions in Hilbert spaces, *Visn. Khark. Univ., Ser. Mat. Prykl. Mat. Mekh.*, 2014, 70, pp. 103-113.
- [5] V. Marchenko, Symmetrically-spectral operators in  $\ell_p$  ( $1 \leq p < \infty$ ) and  $c_0$  spaces, *Visn. Khark. Univ., Ser. Mat. Prykl. Mat. Mekh.*, 2013, 68, pp. 33-44. (in russian).
- [6] G.M. Sklyar and V. Marchenko, Hardy inequality and the construction of infinitesimal operators with non-basis family of eigenvectors, *J. Funct. Analysis*, February 2017, 272(3), pp. 1017-1043.
- [7] G.M. Sklyar and V. Marchenko, Hardy inequality and the construction of the generator of the  $C_0$ -group with eigenvectors not forming a basis, *Dopov. Nac. Akad. Nauk Ukr.*, 2015, 9, pp. 13-17. (in Ukrainian).
- [8] G.M. Sklyar and V. Marchenko, Resolvent of the generator of the  $C_0$ -group with non-basis family of eigenvectors and sharpness of the XYZ theorem, *J. Spectr. Theory*, Accepted.

- [9] G.M. Sklyar, V. Marchenko, and P. Polak, Sharp polynomial bounds for certain  $C_0$ -groups generated by operators with non-basis family of eigenvectors, *J. Funct. Analysis*, Under review.

## Conferences and workshops

- 14-15 May **2010, Kharkiv, Ukraine**, *IV Scientific conference of students and PhD students "Contemporary problems of mathematics and its applications to natural sciences and information technologies"*, Contributed talk.
- 17-22 April **2011, Kharkiv, Ukraine**, *International Conference "Contemporary problems of mathematics and its applications to natural sciences and information technologies"*, Contributed talk.
- 25-26 April **2014, Kharkiv, Ukraine**, *IX International scientific conference of young scientists "Contemporary problems of mathematics and its applications to natural sciences and information technologies"*, Contributed talk.
- 16-20 June **2014, Kharkiv, Ukraine**, *II International conference "Analysis and Mathematical Physics"*, Contributed talk.
- 24-25 April **2015, Kharkiv, Ukraine**, *X International scientific conference of young scientists "Contemporary problems of mathematics and its applications to natural sciences and information technologies"*, Contributed talk.
- 3-6 June **2015, Kyiv, Ukraine**, *International Conference of Young Mathematicians*, Contributed talk.
- 8-12 June **2015, Lille, France**, *International Conference "Recent trends in Operator Theory and Function Theory"*.
- 15-19 June **2015, Kharkiv, Ukraine**, *III International conference "Analysis and Mathematical Physics"*, Contributed talk.
- 22-26 June **2015, Kyiv, Ukraine**, *International Conference "Dynamical Systems and Their Applications"*, Contributed talk.
- 25-28 August **2015, Drohobych, Ukraine**, *V.Ya. Skorobohatko International Mathematical Conference*, Contributed talk.
- 13-17 June **2016, Kharkiv, Ukraine**, *IV International conference "Analysis and Mathematical Physics"*, Contributed talk.
- 18-22 July **2016, Berlin, Germany**, *7th European Congress of Mathematics*, Contributed talk.
- 4-15 Sep. **2016, Mainz, Germany**, *A trilateral German-Russian-Ukrainian summer school "Spectral Theory, Differential Equations and Probability"*, Contributed talk.
- 26-28 Sep. **2016, Kharkiv, Ukraine**, *International Conference "Differential Equations and Control Theory"*, Contributed talk.
- 19-24 June **2017, Kharkiv, Ukraine**, *V International conference "Analysis and Mathematical Physics"*, Poster session.
- 14-18 August **2017, Chemnitz, Germany**, *International Workshop on Operator Theory and its Applications*, Contributed talk.
- 18-23 Sep. **2017, Lviv, Ukraine**, *International Conference in Functional Analysis dedicated to the 125th anniversary of Stefan Banach*, Contributed talk.

- 18-22 June **2018, Kharkiv, Ukraine**, VI International conference "Analysis and Mathematical Physics", Contributed talk.
- 2-6 July **2018, Timisoara, Romania**, 27th International Conference in Operator Theory, Contributed talk.
- 25-27 Sep. **2018, Kharkiv, Ukraine**, 3rd International Scientific Conference "Differential Equations and Control Theory", Contributed talk.
- 23-26 Sep. **2019, Kolobrzeg, Poland**, 4rd International Scientific Conference "Differential Equations and Control Theory", Contributed talk.

## Awards, grants and scholarships

### Awards

- 2018 **Gold Medal and Award of Ukraine Mathematics Competition 2017 for the best young Ukrainian mathematicians sponsored by The Shevchenko Scientific Society (USA) and The U.S.-Ukraine Foundation**, For work "Spectral theory of  $C_0$ -semigroups and stability of Schauder decompositions", Award ceremony: 18 May 2018.
- 2018 **Prize of the National Academy of Sciences of Ukraine for young scientists for the best scientific works**, For work "New class of generators of  $C_0$ -groups and Schauder decompositions".

### Scholarships

- 2011 **Scholarship of the N.I. Akhiezer Foundation.**
- 2016 **Scholarship of the N.I. Akhiezer Foundation.**
- 2016 **Scholarship of the National Academy of Sciences of Ukraine for young scientists**, for 2 years: September 2016 – September 2018.

### Travel grants

- 2015 **Lille, France**, Conference "Recent Trends in Operator Theory and Function Theory", June 2015, Universite de Lille 1 Sciences et Technologies.
- 2016 **Berlin, Germany**, 7th European Congress of Mathematics, July 2016, Technische Universität Berlin.
- 2016 **Mainz, Germany**, A trilateral German-Ukrainian-Russian summer school "Spectral Theory, Differential Equations and Probability", September 2016, Johannes Gutenberg Universität Mainz.
- 2017 **Chemnitz, Germany**, International Workshop on Operator Theory and its Applications IWOTA 2017, August 2017, Technische Universität Chemnitz.
- 2019 **Kolobrzeg, Poland**, 4rd International Scientific Conference "Differential Equations and Control Theory", September 2019, University of Szczecin.

### Grants

- 2015 **Grant of the National Academy of Sciences of Ukraine for young scientists**, Project "Linear evolution equations in a Hilbert space and the Boltzmann equation", June 2015 – December 2016.

2018 **Project Leader of the Grant of the State Fund for Fundamental Research of Ukraine for young scientists**, *Project "Operator-differential equations and their applications in problems of physics" (project no.  $\Phi 83/82$  - 2018)*, July 2018 – December 2018.

### Paper refereeing for

since 2018 **Journal of Mathematical Physics, Analysis, Geometry**, Ukraine, Impact Factor 0.531.  
(3 manuscripts)

since 2018 **Ukrainian Mathematical Journal**, Ukraine, Impact Factor 0.343.  
(1 manuscript)

since 2019 **Journal of Mathematical Study**, China.  
(1 manuscript)

### Additional skills

- Wolfram Mathematica
- Maple
- C++

### Membership

- Kharkiv Mathematical Society