Vitalii Konarovskyi

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Birth date and place: April 30, 1986, Ternopil Oblast, Ukraine

Married, 2 children

Work

- **Collaborative Research Center 1283, Bielefeld University** — Bielefeld, Germany
  Scientific Assistant — *Oct 2021 – present*
  - – Mentor: Benjamin Gess

- **Department of Mathematics, Hamburg University** — Hamburg, Germany
  Substitute W2-professor — *Oct 2020 – Sept 2021*

- **Institute of Mathematics, Leipzig University** — Leipzig, Germany
  Postdoc (on leave) — *Oct 2015 – present*
  - – Mentor: Max von Renesse

- **Max Planck Institute for Mathematics in the Sciences** — Leipzig, Germany
  Postdoc — *Oct 2014 – Oct 2015*
  - – Mentor: Max von Renesse

- **Institute of Stochastics, Friedrich Schiller University Jena** — Jena, Germany
  Postdoc — *Nov 2013 – Apr 2014*
  - – Mentors: Björn Schmalfuss and Ilya Pavlyukevich

- **Department of Mathematics and Informatics, Yuriy Fedkovych Chernivtsi National University** — Chernivtsi, Ukraine
  Assistant professor — *Feb 2011 – Oct 2015*

- **Institute of Mathematics of NAS of Ukraine** — Kiev, Ukraine
  Junior researcher — *Nov 2010 – Feb 2011*

Education

- **Institute of Mathematics of NAS of Ukraine** — Kiev, Ukraine
  Candidate of Sciences in Physics and Mathematics (PhD equivalent) — *Nov 2007 – Nov 2010*
  - Advisor: Andrey A. Dorogovtsev
  - Thesis: The system of interaction particles with variable weights
    (date of degree: May 17, 2012)

- **Yuriy Fedkovych Chernivtsi National University** — Chernivtsi, Ukraine
  Master's degree in Mathematics — *Sept 2006 – June 2007*
  - Advisor: Andrey A. Dorogovtsev

– Thesis: Some properties of coalescing Brownian motions

- **Yuriy Fedkovych Chernivtsi National University** Chernivtsi, Ukraine
  Bachelor's degree in Mathematics Sept 2002 – June 2006

  – Advisor: Mykhailo I. Matiichuk
  – Thesis: Control problem for a system of PDE with time dependent coefficients

Scholarships and Grants

- **Humboldt Research Fellowships for Postdoctoral Researchers** Nov 2016 – Nov 2018
  Mathematisches Institut, Universität Leipzig Leipzig, Germany

- **Erasmus Mundus IANUS scholarship** Nov 2013 – Apr 2014
  Institute of stochastics, Friedrich Schiller University Jena Jena, Germany

- **Participation in the Russian-Ukrainian Grant
  "Asymptotic Behavior of Stochastic Flows".
  Stage 2 "Limit Theorems for Flows with Singularities"** 2009 – 2010
  between the Department of Mechanics and Mathematics of Moscow Heads: Vladimir I. Bogachev
  State University and Institute of Mathematics NAS of Ukraine and Andrey A. Dorogovtsev

- **Participation in the Russian-Ukrainian Grant
  "Asymptotic Behavior of Stochastic Flows"** 2008 – 2009
  between the Department of Mechanics and Mathematics of Moscow Heads: Vladimir I. Bogachev
  State University and Institute of Mathematics NAS of Ukraine and Andrey A. Dorogovtsev

Short visits

- **School of Mathematics** Sept 1 – Oct 2, 2019
  Jilin University (Visiting Professor) Changchun, China

- **IRMA** Feb 9 – March 6, 2020
  University of Strasbourg (Visiting Professor) Strasbourg, France

Publications

1. *On Moments of Multiplicative Coalescents*, (with Vlada Limic), preprint (26 pages), arXiv:2108.11799.

2. *Spectral gap estimates for Brownian motion on domains with sticky-reflecting boundary diffusion*, (with Max von Renesse and Victor Marx), preprint (20 pages), arXiv:2106.00080.

3. *On Number of Particles in Coalescing-Fragmentating Wasserstein Dynamics*, preprint (6 pages), arXiv:2102.10943.

4. *On Conditioning Brownian Particles to Coalesce*, (with Victor Marx), preprint (45 pages), arXiv:2008.02568.

5. *Coalescing-fragmentating Wasserstein dynamics: particle approach*, preprint (62 pages), arXiv:1711.03011.

6. *Reversible Coalescing-Fragmentating Wasserstein Dynamics on the Real Line*, (with Max von Renesse), preprint (59 pages), arXiv:1709.02839.

7. *Stochastic Block Model in a new critical regime and the Interacting Multiplicative Coalescent*, (with Vlada Limic), Electron. J. Probab. **26** (2021), no. 1, 23 pp.

8. *Sticky-Reflected Stochastic Heat Equation Driven by Colored Noise*, Ukrainian Math. J. **72** (2021), no. 9, 1377-1419.

9. *Dean-Kawasaki Dynamics with smooth Drift Potentials*, (with Tobias Lehmann and Max von Renesse), J. Stat. Phys. **178** (2020), no. 3, 666-681. MR4059955

10. *Dean-Kawasaki dynamics: ill-posedness vs. triviality*, (with Tobias Lehmann and Max von Renesse), Elect. Comm. Probab, **24** (2019), no. 8, 9 pp. MR3916340

11. *Modified massive Arratia flow and Wasserstein diffusion*, (with Max von Renesse), Comm. Pure Appl. Math. **72** (2019), no. 4, 764-800. MR3914882

12. *A system of coalescing heavy diffusion particles on the real line*, Ann. Probab. **45** (2017), no. 5, 3293–3335. MR3706744

13. *On asymptotic behavior of the modified Arratia flow*, Electron. J. Probab. **22** (2017), no. 19, 31 pp. MR3622889

14. *Large deviations principle for finite system of heavy diffusion particles*, Theory Stoch. Process. **19** (2014), no. 1, 37–45. MR3337132

15. *Mathematical model of heavy diffusion particles system with drift*, Commun. Stoch. Anal. **7** (2013), no. 4, 591–605. MR3213281

16. *The martingale problem for a measure-valued process with heavy diffusing particles*, Theory Stoch. Process. **17** (2011), no. 1, 50–60. MR3076876

17. *System of sticking diffusion particles of variable mass*, Ukrainian Math. J. **62** (2010), no. 1, 97–113. MR2888581

18. *On an infinite system of diffusing particles with coalescing*, Teor. Veroyatn. Primen. **55** (2010), no. 1, 157–167. MR2768524

Participation in Workshops and Conferences

- **German Probability & Statistics Days Mannheim**   *Mannheim, Germany (Online)*
  University of Mannheim   Sept 27-Oct 01, 2021

- **International Frontiers of Mathematics**   *Changchun, China (Online)*
  Jilin University   Sept 15-17, 2021

- **Bernoulli-IMS One World Symposium 2020**   *Online*
       Aug 24-28, 2020

- **Geometry and Dynamics** — *Jena, Germany*
  Friedrich Schiller University Jena — July 5, 2019

- **Thematic programme "Optimal transport"** — *Vienna, Austria*
  ESI, University of Vienna — May 15-24, 2019

- **Mini School in Probability** — *Changchun, China*
  Jilin University — Apr 8-14, 2019

- **Berlin-Leipzig Workshop in Analysis and Stochastics** — *Leipzig, Germany*
  MPI Leipzig — Jan 16-18, 2019

- **Stoch. Equations, Limit Theorems and Statistics of Stoch. Processes** — *Kiev, Ukraine*
  Igor Sikorsky Kyiv Polytechnic Institute — Sep 17-22, 2018

- **12th International Vilnius Conf. on Probab. Th. and Math. Stat.** — *Vilnius, Lithuania*
  Vilnius University — July 2-6, 2018

- **Berlin-Leipzig Workshop in Analysis and Stochastics** — *Leipzig, Germany*
  MPI Leipzig — Nov 29-Dec 01, 2017

- **Mitteldeutscher Stochastik Workshop** — *Leipzig, Germany*
  MPI Leipzig — Nov 17-18, 2017

- **Metric Measure Spaces and Ricci Curvature** — *Bonn, Germany*
  MPI Bonn (without talk) — Sept 04-08, 2017

- **PIMS-CRM Summer School in Probability** — *Vancouver, Canada*
  Pacific Institute for the Mathematical Sciences, UBC — June 5-30, 2017

- **Stoch. calculus and geometry of stoch. flows and singular interactions** — *Jena, Germany*
  Friedrich Schiller University Jena — Nov 15, 2016

- **Singular Random Dynamics** — *Cetraro, Italy*
  CIME-EMS Summer School (without talk) — Aug 22-26, 2016

- **Berlin-Leipzig workshop in analysis and stochastics** — *Leipzig, Germany*
  MPI Leipzig — April 13-15, 2016

- **Stochastic Analysis 2015: Halle-Jena-Leipzig** — *Halle, Germany*
  Martin-Luther-Universität Halle-Wittenberg — Oct 16-17, 2015

- **Workshop on Levy-Driven Stochastic Dynamics** — *Jena, Germany*
  Friedrich Schiller University Jena — April 17, 2014

- **11th International Vilnius Conf. on Probab. Th. and Math. Stat.** — *Vilnius, Lithuania*
  Vilnius University — June 30-July 4, 2014

- **Infinite dimensional stochastic systems: Theory and applications** — *Wittenberg, Germany*
  (poster talk) — Jan 13-16, 2014

- **Bogolyubov readings DIF-2013.** — *Sevastopol, Ukraine*
  June 23-30, 2013

- **Stochastic Analysis and Random Dynamical Systems** — *Lviv, Ukraine*
  Ivan Franko National University of Lviv — June 14-20, 2009

Seminar talks

- "Malliavin Calculus and its Application", Institute of Mathematics NAS of Ukraine, Kiev, Ukraine (Feb 2021)

- "Kolloquium über Mathematische Statistik und Stochastische Prozesse", Hamburg University, Germany (Nov 2020)

- "Malliavin Calculus and its Application", Institute of Mathematics NAS of Ukraine, Kiev, Ukraine (April 2020, September 2020)

- "Séminaire (de calcul) stochastique", Institut de Recherche Mathématique Avancée, Strasbourg, France (March 2020)

- "Malliavin Calculus and its Application", Institute of Mathematics NAS of Ukraine, Kiev, Ukraine (Nov 2019)

- Heriot-Watt University, Edinburgh, UK (June 2019)

- "Séminaire (de calcul) stochastique", Institut de Recherche Mathématique Avancée, Strasbourg, France (April 2019)

- "Malliavin Calculus and its Application", Institute of Mathematics NAS of Ukraine, Kiev, Ukraine (March 2019)

- "Research Seminar RTG 2131", University of Duisburg-Essen, Germany (Oct 2018)

- "Probability", University of Cambridge, UK (May 2018)

- "ProbL@b seminar", University of Bath, UK (May 2018)

- "Statistical Mechanics Seminar", University of Warwick, UK (Mar 2018)

- "Research Unit — Rough paths, stochastic partial differential equations and related topics", TU Berlin, Germany (Feb 2018)

- "Arbeitsgemeinschaft ANGEWANDTE ANALYSIS", MPI Leipzig, Germany (Jan 2018)

- "Oberseminar Analysis", Institute for Applied Mathematics, Universität Bonn, Germany (Dec 2016)

- "Arbeitsgemeinschaft ANGEWANDTE ANALYSIS", MPI Leipzig, Germany (June 2015)

- MPI Leipzig, Germany (April 2014)

- Weierstrass Institute for Applied Analysis and Stochastics, Berlin, Germany (April 2014)

- "Malliavin Calculus and its Application", Institute of Mathematics NAS of Ukraine, Kiev, Ukraine (May 2014)

- Institute of Stochastics, Friedrich Schiller University Jena, Germany (Dec 2013)

- Department of Mathematics and Informatics, Yuriy Fedkovych Chernivtsi National University, Chernivtsi, Ukraine (June 2013, Jan 2011)

- "Malliavin Calculus and its Application", Institute of Mathematics NAS of Ukraine, Kiev, Ukraine (May 2012, Feb 2011, Nov 2010, June 2010, Dec 2009, Jan 2009, May 2008)

- "Theory of stochastic processes", Faculty of Physics and Mathematics, Kiev Polytechnic Institute, Ukraine (June 2011)

- "Stochastic Differential Equations", Faculty of Mechanics and Mathematics, Taras Shevchenko National University of Kiev, Ukraine (June 2011)

- Faculty of Mechanics and Mathematics, University of Lviv, Ukraine (May 2011)

- "Infinite Dimensional Analysis and Stochastics", Department of Mechanics and Mathematics, Moscow State University, Russian Federation (Oct 2008)

Teaching

Lectures:

- Stochastic Differential Equations and Diffusion Processes *Hamburg University, SS 2021*
- Seminar - Application of large deviations to statistical mechanics *Hamburg University, SS 2021*
- Stochastik 1 für Studierende der Informatik *Hamburg University, SS 2021*
- An introduction to large deviations *Hamburg University, WS 2020/21*
- Seminar - Stoch. flows with interaction and random measures *Hamburg University, WS 2020/21*
- Stochastik 2 für Studierende der Informatik *Hamburg University, WS 2020/21*
- Mathematics 4 for physicists *Leipzig University, SS 2020*
- An introduction to large deviations *Leipzig University, WS 2019/20*
- Mathematics 3 for physicists *Leipzig University, WS 2019/20*
- An introduction to large deviations (mini-course) *Jilin University, China, Sep 2019*
- Mathematics 2 for physicists *Leipzig University, SS 2019*
- Mathematics 1 for physicists *Leipzig University, WS 2018/19*
- Mathematics 4 for physicists *Leipzig University, SS 2016*
- Mathematics 3 for physicists *Leipzig University, WS 2015/16*
- Stochastic processes *Chernivtsi University, WS 2013/14*
- Mathematical statistics *Chernivtsi University, WS 2013/14*
- Theory of semi-groups of Markov processes *Chernivtsi University, WS 2013/14*
- Probability *Chernivtsi University, SS 2013*
- Theory of semi-groups of Markov processes *Chernivtsi University, WS 2012/13*
- Mathematical statistics *Chernivtsi University, WS 2012/13*
- Stochastic processes *Chernivtsi University, WS 2012/13*
- Probability *Chernivtsi University, SS 2012*
- Mathematical statistics *Chernivtsi University, WS 2011/12*

Teaching seminars:

- Mathematical statistics *Chernivtsi University, WS 2013/14*
- Theory of semi-groups of Markov processes *Chernivtsi University, WS 2013/14*
- Probability and mathematical statistics *Chernivtsi University, WS 2013/14*
- Markov and semi-Markov processes *Chernivtsi University, SS 2013*

- Probability   *Chernivtsi University, SS 2013*
- Probability and mathematical statistics   *Chernivtsi University, SS 2013*
- Mathematical statistics   *Chernivtsi University, WS 2012/13*
- Stochastic processes   *Chernivtsi University, WS 2012/13*
- Markov and semi-Markov processes   *Chernivtsi University, WS 2012/13*
- Probability and mathematical statistics   *Chernivtsi University, WS 2012/13*
- Theory of semi-groups of Markov processes   *Chernivtsi University, WS 2012/13*
- Probability   *Chernivtsi University, SS 2012*
- Probability and mathematical statistics   *Chernivtsi University, SS 2012*
- Markov and semi-Markov processes   *Chernivtsi University, SS 2012*
- Mathematical statistics   *Chernivtsi University, WS 2011/12*
- Probability   *Chernivtsi University, WS 2011/12*
- Probability and mathematical statistics   *Chernivtsi University, WS 2011/12*
- Stochastic processes   *Chernivtsi University, WS 2011/12*
- Probability and mathematical statistics   *Chernivtsi University, SS 2011*
- Mathematical statistics   *Kiev Polytechnic Institute, SS 2010*
- Probability   *Kiev Polytechnic Institute, WS 2009/10*

Supervision of master students:

- Alexander Weiß (Hamburg University, 2020-2021)
  Liouville's theorem for SDEs with interaction

- Dumytrash Khrystyna (Chernivtsi University, 2013-2014)
  Asymptotic behaviour of a heavy diffusion particle in Arratia flow

- Romaniuk Tetiana (Chernivtsi University, 2013-2014)
  Generalized system of heavy diffusion particles

- Litvinchuk Yulia (Chernivtsi University, 2012-2013)
  Voter model with continuoum nubber of states

Supervision of bachelor students:

- Mathilda Schwarz (Hamburg University, 2020-2021)
  Scaling limits for critical inhomogeneous random graphs

- Pazuk Oksana (Chernivtsi University, 2012-2013)
  Assymptotic behaviour of a particle model with annigilation

- Romaniuk Tetiana (Chernivtsi University, 2012-2013)

  A particle model with reflecton

- Litvinchuk Yulia (Chernivtsi University, 2011-2012)

  On a rescaling limit of voter model

Organizer of mathematical circles and reading seminars:

- Mathematical circle   *Chernivtsi University*
  "Interesting Problems of Probability and Theory of Stochastic Processes"   *SS 2011*

- Reading seminar   *Institute of Mathematics of NASU*
  "Stochastic Flows and Stochastic Differential Equations"   *SS 2010*