Curriculum Vitae

Personal information

First name: Yan

Last name: Rybalko

Date of birth: 25.06.1994

Citizenship: Ukrainian

Current position: Junior researcher at Mathematical Division of B. Verkin ILTPE of NASU

Email address: rybalkoyan@gmail.com

Google Scholar   ORCID   Scopus

Education

- 01 Nov. 2017 – 30 Jul. 2021   PhD in Mathematics at Mathematical Division of B. Verkin Institute for Low Temperature Physics and Engineering of NAS of Ukraine. *Thesis title:* "Inverse scattering transform method for nonlocal integrable equations". *Supervisor:* Professor Dmitry Shepelsky.

- Sept. 2015 – Jul. 2017   Master degree in Applied Mathematics at V.N. Karazin Kharkiv National University. *Thesis title:* "The long-time asymptotics for solutions of the integrable nonlocal nonlinear Schrödinger equation". *Supervisor:* Professor Dmitry Shepelsky.

- Sept. 2011 – Jun. 2015   Bachelor degree in Applied Mathematics at V.N. Karazin Kharkiv National University. *Thesis title:* "Initial value problems for the non-stationary linear Schrödinger equation with a singular potential". *Supervisor:* Professor Dmitry Shepelsky.

Academic Employment

- Aug. 2021 till now   Junior researcher, Mathematical Division of B. Verkin Institute for Low Temperature Physics and Engineering of NAS of Ukraine

- Feb. 2018 – Jun. 2018   Lecturer, Department of Mathematics and Informatics at V.N. Karazin Kharkiv National University. *Courses:* Calculus of Variations, Functional Analysis.

Articles in peer-reviewed journals

1. Ya. Rybalko, D. Shepelsky, "Curved wedges in the long-time asymptotics for the integrable nonlocal nonlinear Schrödinger equation," *Studies in Applied Mathematics* 2021, to appear. DOI 10.1111/sapm.12403

2. Ya. Rybalko, D. Shepelsky, "Long-Time Asymptotics for the Integrable Nonlocal Focusing Nonlinear Schrödinger Equation for a Family of Step-Like Initial Data," *Communications in Mathematical Physics* **382**, 87–121 (2021). DOI 10.1007/S00220-021-03941-2

3. Ya. Rybalko, D. Shepelsky, "Long-time asymptotics for the integrable nonlocal nonlinear Schrödinger equation with step-like initial data," *Journal of Differential Equations* **270**, 694–724 (2021). DOI 10.1016/j.jde.2020.08.003

4. Ya. Rybalko, D. Shepelsky, "Defocusing nonlocal nonlinear Schrödinger equation with step-like boundary conditions: long-time behavior for shifted initial data", *Journal of Mathematical Physics, Analysis and Geometry* **16**, (4) 418–453 (2020). DOI 10.15407/mag16.04.418

5. Ya. Rybalko, D. Shepelsky, "Long-time asymptotics for the integrable nonlocal nonlinear Schrödinger equation", *Journal of Mathematical Physics* **60**, 031504 (2019). DOI: 10.1063/1.5036705.

6. Ya. Rybalko, "Initial value problem for the time-dependent linear Schrödinger equation with a point singular potential by the unified transform method", *Opuscula Mathematica* **38**, (6) (2018). DOI: 10.7494/OpMath.2018.38.6.883

Reviewer

I reviewed papers for the journals Wave Motion and Communications in Nonlinear Science and Numerical Simulations.

Honors

- Grant for the young scientists' research projects (Jul. 2021 – Dec 2022, budget $\approx$ 6400 EUR)

- Prize of the National Academy of Sciences of Ukraine for young scientists, 2021 (Prize $\approx$ 120 EUR)

- Scholarship of N.I. Akhiezer Fund, 2015, 2020 (Prize $\approx$ 900 EUR)

- Graduated from V.N. Karazin Kharkiv National University with diploma cum laude, 2017

Conferences & Workshops

- Ya. Rybalko, D. Shepelsky, "Focusing nonlocal NLS with step-like initial data: large time behavior," New horizons in dispersive hydrodynamics, Isaac Newton Institute for Mathematical Sciences (Poster), Jun. 21–Jul. 2, 2021, Cambridge, United Kingdom.

- Ya. Rybalko, D. Shepelsky, "Long-time evolution of the shifted step initial data for the nonlocal nonlinear Schrödinger equation," International conference of young scientists, Institute of Mathematics, Jun 2–3, 2021, Kyiv, Ukraine.

- Ya. Rybalko, "Cauchy problem for nonlocal nonlinear Schrödinger equation with step-like initial data: asymptotics and inverse scattering," The conference of young scientists "Pidstryhach readings – 2021", May 26–28, 2021, Lviv, Ukraine.

- Ya. Rybalko, "Long-time asymptotics for the integrable nonlocal nonlinear Schrödinger", 6th Ya. B. Lopatynsky international school-workshop on differential equations and applications, Jun. 18–20, 2019, Vinnytsia, Ukraine

- Ya. Rybalko, D. Shepelsky, "The integrable nonlocal nonlinear Schrödinger equation: Riemann-Hilbert approach and long-time asymptotics", Differential equations and control theory. V.Karazin Kharkiv National University, Sept. 25–27, 2018, Kharkiv, Ukraine

- VI Ya. Rybalko, "Long-time asymptotics for the integrable nonlocal nonlinear Schrödinger equation with step-like initial data", International conference. Analysis and mathematical physics. B. Verkin Inst. LTPE. Jun. 18–22, 2018

- Ya. Rybalko, "Long-time asymptotics for the nonlocal nonlinear Schrödinger equation on the line", V International conference. Analysis and mathematical physics. B. Verkin Inst. LTPE, V.Karazin Kharkiv National University. Jun. 19–24, 2017

- Ya. Rybalko, "Long-time asymptotics for solutions of the integrable nonlocal nonlinear Schrödinger equation", Modern problems in mathematics. V.Karazin Kharkiv National University. Apr. 25–26, 2017