# Nikita Belousov
Curriculum Vitae

## General

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| *Place of birth* | Saint Petersburg, Russia |
| *Date of birth* | 06.09.1996 |
| *E-mail* | belousovnikita.m@gmail.com |

## Employment

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|---|---|
| *since 2024* | Postdoc<br>Beijing Institute of Mathematical Sciences and Applications |
| *2024* | Research assistant<br>Laboratory for mirror symmetry and automorphic forms, Higher School of Economics in Moscow |
| *2022–2024* | Lecturer<br>Physics department, Higher School of Economics in St Petersburg |
| *2020–2023* | Research assistant<br>Euler International Mathematical Institute |

## Education

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|---|---|
| *2024* | PhD in Mathematical physics<br>St Petersburg Department of Steklov Mathematical Institute |
| | Thesis: *Baxter's Q-operators for Ruijsenaars, Sutherland and Lieb–Liniger systems* |
| | Advisor: Sergey Derkachov |
| *2020* | MSc in Physics<br>St Petersburg State University |

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| *2018* | BSc in Applied mathematics and physics |
| | St Petersburg Academic University |

**Research interests**     Integrable systems, special functions

## Publications

14. *Complex rational Ruijsenaars model. The two-particle case*
    w/ G. Sarkissian and V. Spiridonov
    Natural Science Review (2025), [2508.12449]

13. *Ruijsenaars spectral transform*
    w/ S. Khoroshkin
    Letters in Mathematical Physics (2025), [2411.19659]

12. *Reflection operator and hypergeometry II: $SL(2,\mathbb{C})$ spin chain*
    w/ P. Antonenko, S. Derkachov and P. Valinevich
    Zapiski Nauchnykh Seminarov POMI (2024), [2406.19864]

11. *Reflection operator and hypergeometry I: $SL(2,\mathbb{R})$ spin chain*
    w/ P. Antonenko, S. Derkachov and S. Khoroshkin
    Zapiski Nauchnykh Seminarov POMI (2024), [2406.19862]

10. *Baxter operators in Ruijsenaars hyperbolic system IV: coupling constant reflection symmetry*
    w/ S. Derkachov, S. Kharchev and S. Khoroshkin
    Communications in Mathematical Physics (2024), [2308.07619]

9. *Baxter operators in Ruijsenaars hyperbolic System III: orthogonality and completeness of wave functions*
    w/ S. Derkachov, S. Kharchev and S. Khoroshkin
    Annales Henri Poincaré (2024), [2307.16817]

8. *Baxter operators in Ruijsenaars hyperbolic system II: bispectral wave functions*
    w/ S. Derkachov, S. Kharchev and S. Khoroshkin
    Annales Henri Poincaré (2024), [2303.06382]

7. *Baxter operators in Ruijsenaars hyperbolic system I: commutativity of $Q$-operators*
    w/ S. Derkachov, S. Kharchev and S. Khoroshkin
    Annales Henri Poincaré (2024), [2303.06383]

6. *Hypergeometric identities related to Ruijsenaars systems*
   w/ S. Derkachov, S. Kharchev and S. Khoroshkin
   Journal of Algebra (2024), [2303.07350]

5. *Baxter $Q$-operators in Ruijsenaars–Sutherland hyperbolic systems: one- and two-particle cases*
   w/ S. Derkachov, S. Kharchev and S. Khoroshkin
   Journal of Mathematical Sciences (2024), [2309.06108]

4. *Regular representation of the group $GL(N, \mathbb{R})$: factorization, Casimir operators and Toda chain*
   w/ S. Derkachov
   Journal of Mathematical Sciences (2022)

3. *Bäcklund transformation for the nonlinear Schrodinger equation*
   Journal of Mathematical Sciences (2022)

2. *Completeness of the $3j$-symbols for the group $SL(2, \mathbb{C})$*
   w/ S. Derkachov
   Journal of Mathematical Sciences (2021)

1. *The $Q$-operator for the quantum NLS model*
   w/ S. Derkachov
   Journal of Mathematical Sciences (2019), [1812.10043]

## Preprints

2. *Calogero–Sutherland hyperbolic system and Heckman–Opdam $\mathfrak{gl}_n$ hypergeometric function*
   w/ L. Cherepanov, S. Derkachov and S. Khoroshkin [2508.18864]

1. *Complex binomial theorem and pentagon identities*
   w/ G. Sarkissian and V. Spiridonov [2412.07562]

## Talks

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| *20 Oct 2025* | *Eigenfunctions of $A$ and $BC$ Toda chains*<br>Integrable systems blackboard seminar, BIMSA |
| *28 May 2024* | *Zamolodchikov–Faddeev algebra in Ruijsenaars hyperbolic model*<br>Mathematical and Theoretical Physics, dedicated to Ludwig Faddeev, PDMI |

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| *13 Oct,*<br>*14 Nov 2023* | *Baxter Q-operators in Ruijsenaars hyperbolic system*<br>at Leeds and BIMSA Integrable Systems seminars |
| *22 Sep*<br>*2023* | *Bispectrality in Ruijsenaars hyperbolic model*<br>Geometry and Integrability, Skoltech |

## Poster

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| *21–22 Dec*<br>*2022* | *Backlund transformation for the nonlinear Schrodinger*<br>*equation*<br>Academician Andrei A. Slavnov memorial conference,<br>Steklov Mathematical Institite, Moscow |

## Teaching

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| *Sep 2021 —*<br>*May 2024* | Integrable systems<br>Lectures for master's students at HSE, St Petersburg |

## Co-organized activities

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| *Jun 2023* | PDMI and HSE joint workshop on quantum<br>integrability, St Petersburg |
| *Sep 2020 —*<br>*Feb 2021* | Quantum separation of variables method<br>Seminars at PDMI, St Petersburg |
| *Aug — Dec*<br>*2019* | Integrable systems<br>Seminars at PDMI, St Petersburg |
| *Sep 2020 —*<br>*May 2023* | Advanced physics problems for schoolchildren<br>Physical-Technical High School, St Petersburg |
| *Jul 2018,*<br>*2019, 2021, 2022* | Physics lectures, advanced problems and experiments<br>for schoolchildren<br>Physics summer school, St Petersburg |