# CURRICULUM VITAE

## Doniyor Bahodirovich Babajanov


**Date and Place of birth**: 28 June, 1987, Khorezm, Uzbekistan

**Age:** 31

**Nationality**: Uzbekistan

**Affiliation:** Turin Polytechnic University in Tashkent

**Address:** Turin Polytechnic University in Tashkent, 17 Kichik Khalqa Yuli Str., 100095, Tashkent, Uzbekistan

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**Education**:

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| 2004-2008 | Undergraduate student, Faculty of Physics, National University of Uzbekistan |
| 2008-2010 | Master student, Theoretical Physics Department, Faculty of Physics, National University of Uzbekistan. |
| 2011-2013 | Postgraduate, Theoretical Physics Department, Faculty of Physics, National University of Uzbekistan. |

**Career/Employment**:

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| 2006-2009 | Junior researcher assistant, The Laboratory of Advanced Studies, Heat Physics Department of the Uzbek Academy of Sciences |
| 2013-2017 | Assistant teacher, Turin Polytechnic University in Tashkent (by contract) |
| 2014-2016 | Senior teacher, Academic lyceum under Turin Polytechnic University in Tashkent |
| 2013-2017 | Research assistant, Turin Polytechnic University in Tashkent |

**Research Interests:**

Main field: Theoretical Physics

Research interests:

(i) Nonlinear evolution equations on branched systems and networks

(ii) Condensed matter physics: particle transport in low-dimensional nanoscale systems

(iii) Cold atom physics: Nonlinear dynamics of BEC and vortices

**Language skills:**
Uzbek, Russian (bilingual)
English (excellent)
Turkish, German (conversation level)

**Computing skills**

Operation systems: Windows OS, Linux OS, MacOS
Text processors: MS Office, LaTex
Programming languages: FORTRAN, C
Mathematical packages: MatLab, Mathematica
Parallel programming with MPI and OpenMP

**Supervisors:**

Prof. D.U.Matrasulov, Turin Polytechnic University in Tashkent
e-mail: d.matrasulov@polito.uz; dmatrasulov@gmail.com

Prof. K. Nakamura, Faculty of Physics, National University of Uzbekistan
e-mail: ulbkatsu58@yahoo.co.jp

Prof. R. Egger, Institute of Theoretical Physics IV, Dusseldorf University, Germany

e-mail: Reinhold.Egger@uni-duesseldorf.de

**Participation in the International conferences:** participated with talk in more than 15 International conferences

**Fellowships awarded:**

1) ISSC HEP ’09 Summer School Fellowship, 2009.
2) Member of group fellowship - Volkswagen Foundation Grant, 2013-2014.
3) ICTP Summer School fellowship, 2014.
4) Member of group fellowship – TWAS Grant, 2014.
5) Member of group fellowship - Volkswagen Foundation Grant, 2014-2015.
6) Member of group fellowship – TWAS Grant, 2015.
7) ICTP School fellowship, 2016
8) ICTP Spring College fellowship, 2018

**Research trips abroad:**

**1)** International Summer School and Conference on High Energy Physics, Akyaka, Mugla, Turkey, August, 2009.
**2)** Research Collaboration, Institute of Theoretical Physics IV, Dusseldorf University, Dusseldorf, Germany, January-February, 2013.

3) Research Collaboration, Department of Mathematics, Oldenburg University, Oldenburg, Germany, July 2013.

4) Research Collaboration, Institute of Theoretical Physics IV, Dusseldorf University, Dusseldorf, Germany, July 2013.

5) Research Collaboration, Department of Mathematics, Oldenburg University, Oldenburg, Germany, November 2013.

6) Research Collaboration, Institute of Theoretical Physics IV, Dusseldorf University, Dusseldorf, Germany, November 2013.

7) Research Collaboration, Department of Mathematics, Oldenburg University, Oldenburg, Germany, June 2014.

8) Research Collaboration, Institute of Theoretical Physics IV, Dusseldorf University, Dusseldorf, Germany, June-July 2014.

9) School on Non-linear Dynamics, Dynamical Transitions and Instabilities in Classical and Quantum Systems, ICTP, Trieste, Italy, July 2014.

10) Research Collaboration, Department of Mathematics, Oldenburg University, Oldenburg, Germany, August 2015.

11) International Workshop "Transport in one dimension 2015", Max-Planck Institute for Physics of Complex Systems, Dresden, Germany, September 2015.

12) Introductory School on Parallel Programming and Parallel Architecture for High-Performance Computing, ICTP, Trieste, Italy, October 2016.

13) Spring College on the Physics of Complex Systems, ICTP, Trieste, Italy, February-March 2018

**List of publications**

**Refereed journals:**

1) K.K. Sabirov, D.B. Babajanov, D.U. Matrasulov and P.G. Kevrekidis. *Dynamics of Dirac solitons in networks.* **arXiv:1701.05707v1** (submitted to **J. Math. Phys.**) (2017)

2) Z. Sobirov , D. Babajanov and D. Matrasulov. *Nonlinear standing waves on planar branched systems: shrinking into metric graph.* **Nanosystems: physics, chemistry, mathematics**, 8 (1), P. 29–37, (2017)

3) Zarif Sobirov, Doniyor Babajanov, Davron Matrasulov, Katsuhiro Nakamura and Hannes Uecker. *Sine-Gordon solitons in networks: Scattering and transmission at vertices.* **Europhys. Lett. (EPL)** 115, 50002 (2016).

4) Katsuhiro Nakamura, Doniyor Babajanov, Davron Matrasulov, Michikazu Kobayashi, and Paulsamy Muruganandam. *Dynamics of trapped interacting vortices in Bose-Einstein condensates: Role of breathing degree of freedom.* **J. Phys. A: Math. Theor.** 49, 315102 (20pp) (2016).

5) Hannes Uecker, Daniel Grieser, Zarif Sobirov, Doniyor Babajanov, Davron Matrasulov. *Soliton transport in tubular networks: transmission at vertices in the shrinking limit.* **Phys. Rev. E** 91, 023209, (2015).

6) D. B. Babajanov, D. U. Matrasulov, Z. A. Sobirov, S. K. Avazbaev, O. V. Karpova. *Time-dependent quantum circular billiard.* **Nanosystems: physics, chemistry, mathematics**, 6 (2), P. 224–243, (2015).

**7)** S. Rakhmanov, D. Babajanov, O. Karpova, F. Khoshimova. *Quantum dynamics in a kicked square billiards.* **Nanosystems: physics, chemistry, mathematics**, 6 (2), P. 216–223, (2015).

**8)** D. Babajanov, D. Matrasulov, R. Egger. *Particle transport in graphene driven by ultrashort pulses.* **Eur. Phys. J. B**, 87, 258, (2014) (**highlighted paper**).

**9)** K. K. Sabirov, Z. A. Sobirov, D. Babajanov and D. U. Matrasulov. *Stationary Nonlinear Schrodinger Equation on Simplest Graphs***. Phys. Lett. A** 377 (2013) 860–865.

**10)** Katsuhiro Nakamura, Doniyor Babajanov, Davron Matrasulov, and Michikazu Kobayashi. *Dynamics of inertial vortices in multicomponent Bose-Einstein condensates*. **Phys. Rev. A** 86 (2012) 053613.

**11)** S. Rakhmanov, O. Karpova, D. R. Rakhimboeva, F. Khashimova, D. Babajanov. *Quantum dynamics of hydrogen-like atom in one-dimensional box with oscillating walls.* **Nanosystems: Physics, Chemistry, Mathematics**, 6 (6), p. 767–772 (2015)

**12)** К. Сабиров, О. Карпова, Д. Бабажонов. *Стационарное нелинейное уравнение Шрёдингера на простейших графах.* **Uzbek Journal of Physics** Vol.17 (№5), PP.274-281, (2015)

**13)** Sh. A. Mirsagatov, I. B. Sapaev, Sh. R. Valieva, and D. Babajanov. *Electrophysical and Photoelectric Properties of Injection Photodiode Based on pSi-nCdS-In Structure and Influence of Ultrasonic Irradiation on them.* **Journal of Nanoelectronics and Optoelectronics.** Vol. 9, 834-843, 2014

**14)** B. Eshchanov, Sh. Otajonov, A. Isamatov and D. Babajanov. *Dynamics of relaxation processes in liquids: Analysis of oscillation and orientation spectra.* **Journal of Molecular Liquids**. Vol. 202, P. 148–152, (2015)

**Papers published in conference proceedings:**

**15)** K. Sabirov, Z. Sabirov, D. Babajanov and D. Matrasulov. *Time-independent nonlinear Schrödinger equation on simplest networks.* Proceedings of the International Conference on **"Low Dimensional Functional Materials"** Tashkent, 2012

**16)** Z. Kanokov, D. Babajanov and K. Nakamura. *Non-Markovian dynamics of the quantum systems.* Proceedings of international workshop **"Low-dimensional nanoscale systems"**, November 6-7 (2012), Tashkent, Uzbekistan

**17)** K. Nakamura, D. Babajanov. *Dynamics of vortices with inertia in multi-component Bose-Einstein condensates.* Proceedings of International Workshop **"Low-dimensional Nanoscale Systems"**, November 10-11 (2011), Tashkent, Uzbekistan