CURRICULUM VITAE

Zarifboy Sobirov

Date and place of birth:
December 14, 1975, Khorezm region, Uzbekistan.

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Turin Polytechnic University in Tashkent, 17 Niyazov Str., 100095, Tashkent, Uzbekistan.
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Education:
1993-1998 Tashkent State University, Department of Mathematics
1999-2003 PhD student at National University of Uzbekistan
Degree obtained: PhD (November, 2005)

Teaching experience:
2003-2006 Lecturer at Mathematics Department of the National University of Uzbekistan (Lectures on Ordinary and Partial Differential Equations & Mathematical Physics).

Career/Employment:
2003 – 2006 Lecturer at National University of Uzbekistan Department of Differential Equations.
2007 – 2010 Postdoctoral fellow at the Heat Physics Department of the Uzbek Academy of sciences.
2010-present Assistant Professor at Turin Polytechnic University in Tashkent and research associate at Mathematics Department of the National University of Uzbekistan.

Visits abroad:
Two-months visit in the Institute of Applied Analysis, University of Ulm (2010, Ulm, Germany). Hosted by Prof. Dr. Wolfgang Arendt.
A

References:
1. **Prof. Katsuhiro Nakamura.** Faculty of Physics, National University of Uzbekistan & Department of Applied Physics, Osaka City University.
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Research interests:

My research interests are focused on linear and nonlinear differential equations and their applications in physics. In particular, I am working on:

1) Exact, asymptotical and numerical solutions of linear Schrödinger equations, their applications to confined systems, such as quantum billiards and quantum graphs.
2) Exact, asymptotical and numerical solutions of the Dirac equation, their applications to confined systems, such as quantum billiards and quantum graphs.
3) Schrödinger and Dirac equations in domains with time-changing boundary and their application to quantum Fermi acceleration problem
4) Nonlinear Schrodinger and KdV equation on graphs and its application to soliton propagation in networks.
5) Inverse spectral problems for confined systems (e.g., billiards, graphs etc.). Recovering of time dependence of the boundary from the given spectrum.

List of publications
By Zarif Sobirov

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

2. Katsuhiro Nakamura, Zarifboy A. Sobirov, Davron U. Matrasulov, and Sanat K. Avazbaev Bernoulli's formula and Poisson's equations for a confined quantum gas: Effects due to a moving piston. **Phys. Rev. E 86,** 061128 (2012)

3. K.Nakamura, Z.A.Sobirov, D.U.Matrasulov, S.Sawada. *Transport in simple networks described by integrable discrete nonlinear Schrödinger equation.* **Physical Review E** 84, 026609 (2011).

4. **3.** K.Nakamura, S.K.Avazbaev, Z.A. Sobirov, D.U. Matrasulov, T. Monnai. *Ideal quantum gas in expanding cavity: Nature of non-adiabatic force***. Physical Review E** 83, 041133 (2011).

5. **4.** Z.A.Sobirov and S.Abdinazarov. *Cauchy Problem for for some high order generalization of Korteweg - de Vries equation.* **Preprint: Ulmer Seminare**, Volume 16 (2011) (Ulm University, Ulm, Germany).

6. **5.** K.K.Sabirov, Z.A.Sobirov, J.S.Eshoqulov. *Stationary nonlinear Shrodinger equation on star graph.* **Uzb. J. Phys.** Vol. 12, No. 3 (2010) p. 111-116.(in Russian).

7. **6.** Z.A.Sobirov, D.U.Matrasulov, K.K.Sabirov, S.Sawada, K.Nakamura. *Integrable nonlinear Schrödinger equation on simple networks: Connection formula at vertices.* **Physical Review E** 81, 066602 (2010).

8. **7.** P. Schmelcher and F. Lenz, D.U.Matrasulov, Z.A.Sobirov and S.K. Avazbaev. *Time-Dependent Quantum Billiard,*. in **"Complex Phenomena in Nanoscale Systems",** Eds. G.Casati and D.Matrasulov, Springer(2009).

9. **8**. Z.A.Sobirov, D.U.Matrasulov, Sh.Ataev and H.T.Yusupov. *Time dependent neutrino billiards,* in **"Complex Phenomena in Nanoscale Systems",** Eds. G.Casati and D.Matrasulov, Springer(2009).

10. **9.** D.U.Matrasulov, Z.A.Sobirov. K.Sabirov. *Inverse Spectral Problem for Atomlike Mesons.* **Modern Physics Letters A,** Vol. 23, no. 23 (2008), p. 1913 - 1920.

11. **10.** K.K.Sabirov, Z.A.Sobirov. *Nonlinear Schrodinger equation on quantum graphs.* **Uzb. J. Phys**. Vol. 10, No. 4 (2008) (in Russian).

12. **11.** Z.A.Sobirov, G.M.Milibaeva. *Quantum dynamics in billiard geometries with non-static boundaries.* **Uzb. J. Phys**. Vol. 10, No. 4 (2008) (in Russian).
13. **12.** D.U.Matrasulov, Z.A.Sobirov, M.B.Salaeva, A.A.Saidov, P.K.Khabibullaev. *Quantum dynamics of a particle in a two-dimensional nanosized triangular box with moving walls.* **Uzb. J. Phys**. Vol. 10, No. 2 (2008) (in Russian).
14. **13.** Z.A.Sobirov. D.U.Matrasulov, K.Sabirov, *Inverse spectral problem for Coulomb plus confining potential.* **Uzb. J.Phys**. Vol. 10, p.128 (2008)
15. **14.** Z.A.Sobirov. Cauchy problem for non stationary integral-differential equation. **Proc. of Int. Conf. "**Tikhonov and contemporary mathematics". Moscow, June 19-25, 2006, p. 263.
16. **15.** S.Abdinazarov, Z.A.Sobirov. *Cauchy problem for high odd order equation on* $C^1([0, y_0],\ S(R^1))$ *space.* **Proc. of Int. Conf. "Partial differential equations and related problems of analyses and informatics"**. Tashkent, 2004 . vol. I. p. 145.
17. **16.** S.Abdinazarov, Z.A.Sobirov, O.S.Zikirov. *On some non local problems for fourth order equation with multiple characteristics.* **Proc. XVI Int. Conf. "Mathematical methods on technique and technologies".** vol I, Sankt-Piterburg, 2003, p.36.
18. **17.** S.Abdinazarov, Z.A.Sobirov. On continuous dependence of generalized solution of Cauchy problem from initial data for high odd order nonlinear equation. **Proc. Int. Russian-Uzbek symposium.** Nalchik, 2003, p.10.
19. **18**. S.Abdinazarov, Z.A.Sobirov. *Cauchy problem for a nonlinear, high odd order equation with multiple characteristics.* **Proc. of Int. Conf. "Spectral Theory of Differential Operators and Related Problems ".** Sterlitamak, Russia, 2003. p. 71.
20. **19.** S.Abdinazarov, Z.A.Sobirov. *Boundary value problem for a mixed type high odd order equation with multiple characteristics.* **Uzbek J. Math.**, N.2 . p.3 (2003).
21. **20.** S.Abdinazarov, Z.A.Sobirov. *On continuous dependence of generalized solution of the Cauchy problem from initial data for high order nonlinear equation.* **Uzbek J. Math.**, N.1. p.3 (2003).

22. **21.** Z.A.Sobirov. *Generalized solution of the Cauchy problem for high odd order equation.* **Uzbek J. Math.**, N. 5-6. p.45 (2001).