

### 3 List of Publications of Sabir Umarov

- **Papers In Preparation:**

(with Nelson K.) The relationship between Tsallis statistics, the Fourier transform, and nonlinear coupling. (arXiv:0811.3777v1)

(with Tsallis C.) Multivariate generalizations of q-Central limit theorems. (ArXiv:cond-mat/0703533 )

- **Submitted:**

On fractional Duhamel's principle and its applications [ArXiv: 1004.2098]

- **Accepted:**

(with Hahn M., Kobayashi K.) Fokker-Planck-Kolmogorov equations associated with time-changed fractional Brownian motion. Proceedings of the American Mathematical Society. (in press) [ArXiv: 1002.1494v1]

- **Published:**

**2010 Publications:**

(with Hahn M., Kobayashi K.) SDEs driven by a time-changed Lévy process and their associated time-fractional order pseudo-differential equations. Journal of theoretical probability (2010) doi:10.1007/s10959-010-0289-4 [ArXiv:0907.0253]

(with Hahn M., Jiang X.) On q-Gaussians and exchangeability. Journal of Physics A: Mathematical and Theoretical, V 43 (2010) doi:10.1088/1751-8113/43/16/165208 [ArXiv: 0911.1176]

(with Silvio Duarte Queiros.) Functional-differential equations for the q-Fourier transform of q-Gaussians, Journal of Physics A: Mathematical and Theoretical. V 43 (2010) 095202 (15pp) doi:10.1088/1751-8113/43/9/095202 [ArXiv: 0802.0264]

(with Nelson K.) Nonlinear statistical coupling. Physica A: Statistical Mechanics and its Applications. (2010) doi:10.1016/j.physa.2010.01.044 [ArXiv: 0912.0748]

(with Tsallis C., Gell-Mann M. and Steinberg. S) Generalization of symmetric alpha-stable distributions for  $q > 1$ . Journal of Mathematical Physics. V 51 (3) (2010) doi: 10.1063/1.3305292 [ArXiv: cond-mat/0911.2009]

– **2009 publications:**

(with Steinberg S.) Variable order differential equations with piecewise constant order-function and diffusion with changing modes. Zeitschrift für Analysis und ihre Anwendungen, 2009, V 28, 4, 131-150.

(with Tsallis C.) On a representation of inverse Fq-transform. Physics Letters A. 2008, V 372, 29, 4874-4876.

(with Tsallis C. and Steinberg S.) A generalization of the central limit theorem consistent with nonextensive statistical mechanics. Milan Journal of Mathematics, 2008, 76(1), 307-328.

(with Tsallis C.) On multivariate generalizations of the q-central limit theorem consistent with nonextensive statistical mechanics. Proceedings of International Conference Complexity, Metastability and Nonextensivity, Italy, Catania, 34-42, 2007.

(with Saydamatov E.M.) A generalization of the Duhamel principle for fractional order differential equations. *Doclady Ac. Sci. Russia*, 2007, 412, 4, 463-465 (English Translation: *Doklady Mathematics*, 2007, Vol. 75, No. 1, pp. 94-96).

(with Andries E., Steinberg S.) Monte Carlo Random Walk Simulations Based on Distributed Order Differential Equations with Applications in Cell Biology, *FCAA*, (2006) V 9, N 4, 351-369. Extended preprint version: [ ArXiv: math.DS/0606797 ]

(with Saydamatov E.M.) A fractional analog of the Duhamel principle. *FCAA*, V 9, (2006), No 1, p. 57-70.

(with Steinberg S.) Random walk models associated with distributed fractional order differential equations. *IMS Lecture Notes - Monograph Series. High Dimensional Probability*. V. 51, (2006), 117-127.

(with Gorenflo R.) The Cauchy and multipoint problems for distributed order fractional differential equations, Part 1. *Zeitschrift für Analysis und ihre Anwendungen*, V.24 (2005), No 3, p. 449-466.

(with Gorenflo R.) On multi-dimensional symmetric random walk models approximating fractional diffusion processes. *Fractional Calculus and Applied Analysis*, V. 8 (2005) No 1, p.73-88.

(with Gorenflo R.) On multi-dimensional random walk models approximating symmetric fractional diffusion processes. Preprint N A 04-03, 2004, 16 p. (<http://www.math.fu-berlin.de/publ/preprints/2004/Pr-A-04-03.html>)

Multidimensional random walk model approximating fractional diffusion processes. *Decl. Ac. Sci. of Uzbekistan*, 2003

Fractional differential equations and some of their applications. In "Silk Road Quantum Mechanics, 2003, September-October, Tashkent.

(with Saydamatov E.M.) On the spectrum of general pseudo-differential operators. *Fractional Calculus and Applied Analysis*, Vol. 4, No. 3, 2001, p. 327-341.

(with Gorenflo R. and Luchko Yu) On boundary value problems for pseudo-differential equations with boundary operators of fractional order. *Fractional calculus and Applied analysis*. Vol. 3, No. 4, 2000, p 454-468. Extended preprint version: [ Preprint N A 00-06, 2000, 16 p. (<http://www.math.fu-berlin.de/publ/preprints/2000/Pr-A-00-06.html>) ]

(with Gorenflo R. and Luchko Yu) On the Cauchy and multi-point problems for partial pseudo-differential equations of fractional order. *Fractional Calculus and Applied Analysis*. Vol. 3, No 3, 2000, p 250-275. Extended preprint version: [ Preprint Nr. A-5-2000, Free University of Berlin, 2000, 36 p. (<http://www.math.fu-berlin.de/publ/preprints/2000/Pr-A-00-05.html>) ]

(with Saydamatov E.M.) On well-posedness of general inhomogeneous boundary value problems for pseudo-differential equations. *Uzbek Mathematical Journal*, No 5, (1999), pp. 53-60. (in Russian)

Nonlocal boundary value problems for pseudo-differential and differential-operator equations II. *Differential Equations*, V.34, no. 3, 1998, p 375-382.

Non-local boundary value problems for pseudo-differential and differential-operator equations I. *Differential Equations*, V.33, no. 6, 1997, p 827-836

(with Saydamatov E.M.) On discreteness condition of spectrum of general pseudo-differential operators. *Differential Equations*, V.33, no 1, 1997, 133-135.

(with Nazarova M.Kh.) On weak well-posedness of certain boundary value problems generated by a singular Bessel operator. *Uzbek math. Journal*, No 3, 1997, 63-70

(with Saydamatov E.M.) (1995) On correctness of inhomogeneous boundary value problems for pseudo-differential equations. *Proc. Of Inst.Math. and Comp.Tech.* Ashgabad, V.5, 1995, 81-83.

(with Turmetov B.Kh.) On a problem for differential equation of fractional order. In "Degenerate equations and equations of mixed type", Tashkent, (1994), 174.

On certain boundary value problems for elliptic equations with boundary operator of fractional order. *Docl. of Ac. Sci. of Russia*, V 333, no 6, 1993, 708-710.

(with Turmetov B.Kh.) On a boundary value problem for equations of fractional order. *Docl. of Ac. Sci. of Russia*, V 333, no 4, 1993, 446-448.

On well-posedness of boundary value problems for pseudo-differential equations with analytic symbols. *Docl. of Ac. Sci. of Russia*, V 322, no 6, 1992, p. 1036-1039.

On fractional derivatives of harmonic functions with given trace. *Docl. Ac. Sci. of Uzbekistan*, no. 10-11, 1992, 17-19.

On solvability of boundary value problems for normal systems of complex pseudo-differential equations of arbitrary order. *Docl. Ac. Sci. of Uzbekistan*, no. 8-9, 1992, 12-14.

Non-local boundary value problems for differential operator equations. In "Qualitative methods in theory of boundary value problems". Voronezh, (1992), May, 4-8, 108.

On well-posedness of systems of pseudo-differential equations with variable analytic symbols. *Docl. of Ac. Sci. of Russia*, V 318, no 4, 1991, p 835-839.

On a critical value of order of boundary operators of elliptic boundary problems. *International Conference on Differential Equations*, Moscow, Published in *Uspekhi matematicheskikh nauk* (Soviet math. Survey), v.46, (1991), no. 6 , 201.

Algebra of pseudo-differential operators with variable analytic symbols and well-posedness of corresponding equations. *Differential Equations*, V. 27, no. 6, 1991, p 1056-1063.

On a representation of exponential functionals. *Docl. Ac. Sci. of of Uzbekistan*, no. 4, 1990, p 8-10.

(with Naimzhanov A.) Fourier transform in the space of analytic functions, *Math. Anal., Algebra and Geom.*, Tashkent St. Univ., (1990), 69-72.

Solvability of Cauchy and Cauchy-Dirichlet problems for non-linear differential equations of infinite order. *Izv. Ac. Sci of Republic of Uzbekistan*, no. 5 (1989) 33-38.

On the local well-posedness of boundary value problems for pseudo-differential equations. *Docl. Ac.Sci of Uzbekistan*, no.11 (1989) , 7-9.

On well-posedness of systems of pseudo-differential equations with analytic symbols. Docl. Ac. Sci. of Uzbekistan (1989), no. 9, 9-10.

A non-triviality criterion of spaces of infinitely differentiable vectors of an operator with empty spectrum. Docl. Ac. Sci. of Uzbekistan (1988) , No. 1, 11-13.

A spectral problem for pseudo-differential equations with complex arguments. In "Actual problems of complex analysis", Tashkent, (1989), 122.

Boundary value problems for differential-operator and pseudo-differential equations. Izv. Ac.Sci. of Uzbekistan (1986), no. 4, 38-42.

On the theory of non-linear differential equations of infinite order. In "Functional methods in mathematical physics", Tashkent, (1988) , 64-65.

On certain spaces generated by spectral operators and their applications. International Conference on Differential Equations, Moscow, Published in Uspekhi matematicheskikh nauk (Soviet math. Survey) (1985) , v.40, no. 5 , 215.

On some spaces of infinite order and their applications to operator equations. Soviet math. Doclady (1984) , V 275, no. 2 513-517.

On the Cauchy problem for differential - operator equations, Moscow, MPEI (1984) , no. 45, 123-127.

On the Cauchy problem for partial differential equations on torus. Doclady Ac.Sci of Uzbekistan (1983) , no.1, 5-6.

On the improvement of the accuracy of rectangular cubature formula by the asymptotic expansion method. Problems of computational and applied mathematics, Cybernetics Institute of Ac.Sci. of Republic of Uzbekistan (1981) , 66, 60-71.

- **Preprint form only:**

(with Tsallis C., Gell-Mann M., Steinberg S.) Symmetric ( $q, \alpha$ )-Stable Distributions. Part I: First Representation [ArXiv: cond-mat: 0606038]

(with Tsallis C., Gell-Mann M., Steinberg S.) Symmetric ( $q, \alpha$ )-Stable Distributions. Part I: Second Representation [ArXiv: cond-mat: 0606040]

(with Andries E., Steinberg St.) Motion in Cell Membranes, General Random Walks and Anomalous Diffusion [<http://math.unm.edu/stanly/prints/AnomalousWalks.pdf>]

- **Books in Progress:**

(with Steinberg S.) Pseudo-differential and fractional order differential equations and their applications.

(with Tsallis C.) Mathematical aspects of q-theory.