Personal Information

Full Name:	Denis **GREBENKOV**
Citizenship:	French Marital status: Married, 2 children
Birth:	August 31, 1978 (at Saint Petersburg, Russia)
Position:	Senior Scientist (DR2) at CNRS
Work Address:	Laboratory of Condensed Matter Physics UMR 7643 CNRS – Ecole Polytechnique 91128 Palaiseau, FRANCE
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Professional Experience

Since 2020	Senior Scientist (DR2) at **CNRS**, Ecole Polytechnique, FRANCE
Since 2012	Lecturer at **Ecole Polytechnique**, FRANCE
2011, 2017	Sabbatic Year at Poncelet Laboratory, Moscow, RUSSIA
2010-2020	Scientist (CR1) at **CNRS**, Ecole Polytechnique, FRANCE
2010-2018	Lecturer at **Ecole Normale Supérieure de Cachan**, FRANCE
2009	Habilitation for research supervision (HDR), **University Paris-6**, FRANCE
2007-2019	Lecturer at **Ecole Supérieure d'Electricité**, FRANCE
2006-2010	Scientist (CR2) at **CNRS**, Ecole Polytechnique, FRANCE
2005-2006	Post-doc research position at **University of Naples "Federico II"**, ITALY European Marie Curie Research Training Network "Arrested Matter" (MRTN-CT-2003-504712) Subject: *Theoretical and Numerical Study of Complex Systems Exhibiting a Structural Arrest in the Field of Soft and Colloidal Matter* Supervisor: Prof. A. Coniglio (Department of Physics)
2004-2005	Post-doc research position at **Université Paris-Sud**, FRANCE Subject: *Dynamics of a Confined Diffusion of Hyperpolarized Helium-3 in the Human Pulmonary Acinus. Geometry-Image Relation and Emphysema Diagnostic* Supervisor: Prof. G. Guillot (Department of Medical Magnetic Resonance Research)
2001-2004	PhD thesis at **Ecole Polytechnique**, FRANCE Diploma: PhD, with honors and congratulations (defense on 2nd July 2004) Subject: *Laplacian Transport towards Irregular Interfaces: A Theoretical, Numerical and Experimental Study* Supervisors: Prof. B. Sapoval and M. Filoche (Laboratory of Condensed Matter Physics)
2001-2003	PhD thesis at **Saint Petersburg State University**, RUSSIA Diploma: PhD, with honors (defense on 25th December 2003) Subject: *Study of Relaxation in a Model Micellar Solution* Supervisor: Prof. A. P. Grinin (Department of Statistical Physics)
1996-1999	Assistant professor of mathematics at lyceum 239, Saint Petersburg, RUSSIA

Awards and Distinctions

2019	Friedrich Wilhelm Bessel Research Award, Humboldt Foundation
2012	Bronze Medal CNRS
2010	Giulio Cesare Borgia Prize
2004	Prix de thèse de l'Ecole Polytechnique (best PhD thesis of the year)

Languages

Russian:	mother tongue
English:	fluent
French:	fluent

Computer skills

Programming:	C/C++
Software:	Matlab, Maple TeX, Microsoft Word

Education

2000-2001	**Ecole Normale Supérieure de Paris**, Ecole Polytechnique, Paris VI, Paris VII, Paris XI Diploma: *DEA in Theoretical Physics* (equivalent to MSc degree)
1999-2000	**Ecole Polytechnique**, France (International Program, X'97, last academic year) Certificate with honors, congratulations of the jury "physics"
1999-2001	**Saint Petersburg State University**, Russia Diploma: *Master of Science in Physics*, with honors Research field: Non-equilibrium physics (Department of Statistical Physics)
1995-1999	**Saint Petersburg State University**, Russia Diploma: *Bachelor of Science in Physics*, with honors Research field: Statistical physics and complex systems (Department of Statistical Physics)
1991-1995	**Lyceum 239** specialized in mathematics and physics, Saint Petersburg, Russia Graduate Education Certificate

Research Interests

- **Mathematical Physics**: restricted diffusion, anomalous diffusions, reflected Brownian motion, NMR and transport processes in porous media; spectral properties of the Laplace operator in irregularly-shaped domains; inverse spectral problems; fractal geometry; wave equation;
- **Biophysics, Medical Physics, Physics in Physiology**: magnetic resonance imaging of biological tissues and organs (brain, lungs); single particle tracking in living cells, inference methods; respiratory function, diffusion through semi-permeable membranes; transport in the human placenta;
- **Statistical Physics**: dynamics of granular media; non-equilibrium systems; self-organization; transitive processes; models of stock exchanges;
- **Condensed Matter Physics**: nucleation theory; micellization; relaxations.

Scientific Production and Synergetic Activities

- Author and co-author of 161 publications in top peer-reviewed journals, including Rev. Mod. Phys. (1), Nature Comm. (1), Proc. Nat. Acad. Sci. USA (1), Phys. Rev. Lett. (8), New J. Phys. (6), Phys. Rev. E (25), Phys. Chem. Chem. Phys. (3), J. Chem. Phys. (12), J. Magn. Reson. (11), J. Stat. Phys. (5), Eur. Phys. J. B (3), J. Theor. Biol. (3), etc.
- Lecturer at the leading French and international institutions: Ecole Polytechnique (France), Ecole Normale Supérieure de Cachan (France), Ecole Supérieure d'Electricité (France), Saint Petersburg State Univeristy (Russia), University of Sciences in Ho Chi Minh City (Vietnam)
- Supervisor and co-supervisor of 9 PhD theses, 6 post-docs and 32 master theses
- Organizers of 10 international conferences (France, USA, Canada, Russia)

Ten The Most Cited Papers in Peer-Reviewed Journals

1. D. S. Grebenkov, *NMR survey of reflected Brownian motion*, **Rev. Mod. Phys. 79**, 1077-1137 (2007).
2. D. S. Grebenkov and B.-T. Nguyen, *Geometrical structure of Laplacian eigenfunctions*, **SIAM Reviews 55**, 601-667 (2013).
3. S. K. Ghosh, A. G. Cherstvy, D. S. Grebenkov, and R. Metzler, *Anomalous, non-Gaussian tracer diffusion in heterogeneously crowded environments*, **New J. Phys. 18**, 013027 (2016).
4. O. Bénichou, D. S. Grebenkov, P. Levitz, C. Loverdo, and R. Voituriez, *Optimal Reaction Time for Surface-Mediated Diffusion*, **Phys. Rev. Lett. 105**, 150606 (2010).
5. D. S. Grebenkov, *Laplacian Eigenfunctions in NMR I. A Numerical Tool*, **Conc. Magn. Reson. A 32**, 277-301 (2008).
6. Y. Lanoiselée, N. Moutal, and D. S. Grebenkov *Diffusion-limited reactions in dynamic heterogeneous media*, **Nature Commun. 9**, 4398 (2018).
7. D. S. Grebenkov, R. Metzler, and G. Oshanin, *Strong defocusing of molecular reaction times: geometry and reaction control*, **Nature Commun. Chem. 1**, 96 (2018).
8. D. S. Grebenkov, *Residence times and other functionals of reflected Brownian motion*, **Phys. Rev. E 76**, 041139 (2007).
9. O. Bénichou, D. S. Grebenkov, P. Levitz, C. Loverdo, and R. Voituriez, *Mean first-passage time of surface-mediated diffusion in spherical domains*, **J. Stat. Phys. 142**, 657-685 (2011).
10. Y. Lanoiselée and D. S. Grebenkov, *A model of non-Gaussian diffusion in heterogeneous media*, **J. Phys. A 51**, 145602 (2018).