

## Personal Information

Full Name: Denis **GREBENKOV**  
Citizenship: Russian/French Marital status: Married, 2 children  
Birth: August 31, 1978 (at Saint Petersburg, Russia)  
Position: Scientist (CR1) at CNRS  
Work Address: Laboratory of Condensed Matter Physics  
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## Professional Experience

Since 2012 Lecturer at **Ecole Polytechnique**, FRANCE  
2011, 2017 Sabbatic Year at Poncelet Laboratory, Moscow, RUSSIA  
Since 2010 Scientist (CR1) at CNRS, **Ecole Polytechnique**, FRANCE  
Since 2010 Lecturer at **Ecole Normale Supérieure de Cachan**, FRANCE  
2009 Habilitation for research supervision (HDR), **University Paris-6**, FRANCE  
Since 2007 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. Antonio 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. Geneviève 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*  
Supervisor: Prof. Bernard Sapoval (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. Aleksandr P. Grinin (Department of Statistical Physics)  
1996-1999 Assistant professor of mathematics at lyceum 239, Saint Petersburg, RUSSIA

## Awards and Distinctions

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 of Physiological Objects:** magnetic resonance imaging (MRI) 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 102 publications in top peer-reviewed journals, including *Rev. Mod. Phys.* (1), *Proc. Nat. Ac. Sci.* (1), *Phys. Rev. Lett.* (7), *Phys. Rev. E* (19), *J. Chem. Phys.* (6), *J. Magn. Reson.* (8), *J. Stat. Phys.* (4), *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 University (Russia), University of Sciences in Ho Chi Minh City (Vietnam)
- Supervisor and co-supervisor of 9 PhD theses, 5 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. O. Bénichou, D. S. Grebenkov, P. Levitz, C. Loverdo, R. Voituriez, *Optimal Reaction Time for Surface-Mediated Diffusion*, **Phys. Rev. Lett.** **105**, 150606 (2010).
3. D. S. Grebenkov, *Laplacian Eigenfunctions in NMR I. A Numerical Tool*, **Conc. Magn. Reson. A** **32**, 277-301 (2008).
4. D. S. Grebenkov, *Residence times and other functionals of reflected Brownian motion*, **Phys. Rev. E** **76**, 041139 (2007).
5. D. S. Grebenkov, M. Pica Ciamarra, M. Nicodemi, A. Coniglio, *Flow, Ordering and Jamming of Sheared Granular Suspensions*, **Phys. Rev. Lett.** **100**, 078001 (2008).
6. D. S. Grebenkov, M. Filoche, B. Sapoval, *Mathematical Basis for a General Theory of Laplacian Transport towards Irregular Interfaces*, **Phys. Rev. E** **73**, 021103 (2006).
7. O. Bénichou, D. S. Grebenkov, P. Levitz, C. Loverdo, R. Voituriez, *Mean first-passage time of surface-mediated diffusion in spherical domains*, **J. Stat. Phys.** **142**, 657-685 (2011).
8. P. Levitz, D. S. Grebenkov, M. Zinsmeister, K. Kolwankar, B. Sapoval, *Brownian flights over a fractal nest and first passage statistics on irregular surfaces*, **Phys. Rev. Lett.** **96**, 180601 (2006).
9. D. S. Grebenkov, *Analytical solution for restricted diffusion in circular and spherical layers under inhomogeneous magnetic fields*, **J. Chem. Phys.** **128**, 134702 (2008).
10. D. S. Grebenkov, G. Guillot, B. Sapoval, *Restricted Diffusion in a Model Acinar Labyrinth by NMR. Theoretical and Numerical Results*, **J. Magn. Reson.** **184**, 143-156 (2007).