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Birth date: December 15, 1975

Citizenship: French

EDUCATION

- Sept 2005- Researcher at the **LAMI**, Ecole Nationale des Ponts et Chaussées.
- 2004-2005 Postdoc in Minneapolis (**IMA**), participation in the thematic year “Mathematics of Materials: multiple scales, disorders and singularities”.
- 2001-2004 Ph.D. in applied mathematics, **CERMICS** laboratory (including a collaboration with **EDF**, the French electricity supplier).
Title: Molecular and multiscale methods for the numerical simulation of materials.
Keywords: partial differential equations, coupling of atomistic and continuum descriptions of materials, finite elements method, molecular dynamics, numerical analysis of algorithms for Hamiltonian dynamical systems.
Supervisors: Claude Le Bris (CERMICS) and Yvon Maday (University Paris 6).
- 1998-2001 Student at the **Ecole Nationale des Ponts et Chaussées**.
First year: Engineer degree of the Ecole Nationale des Ponts et Chaussées.
Second year: One-year internship with **General Electric**.
Third year: Post-graduate degree in numerical analysis and scientific computing (DEA d’Analyse Numérique, University Paris 6).
- 1995-1998 Student at the **Ecole Polytechnique** (Paris). Engineer degree (1998).
Specialization: Physics.

INTERNSHIPS

- July-Aug’
2001 CEMRACS summer school (Marseille, France).
 Numerical homogenization of non-linear visco-elastic 2D polycrystals.
- March-
June 2001 DEA internship, CERMICS.
 Molecular dynamics: analysis of some methods, design of new algorithms.
- July 1999-
July 2000 ENPC internship, **General Electric Power Controls France**.
Industrial project management. As a member of a team (10 people) in charge of the design of the accessories for a new range of industrial breakers, I was in charge of: the following of the design, test and industrialization process; the communication with the other teams; the quality analysis of the accessories.
 This experience included working with other teams in Europe and in the US.

JOURNAL ARTICLES

- *Non-ergodicity of the Nose-Hoover Thermostatted Harmonic Oscillator*, arXiv preprint (November 2005, math.DS/0511178), accepted in Archives for Rational Mechanics and Analysis (with M. Luskin and R. Moeckel).
- *Theoretical and numerical comparison of some sampling methods for molecular dynamics*, IMA preprint # 2040, April 2005, submitted to Mathematical Modelling and Numerical Analysis (with E. Cancès and G. Stoltz).
- *Analysis of a prototypical multiscale method coupling atomistic and continuum mechanics: the convex case*, submitted to Acta Mathematicae Applicatae Sinica (with X. Blanc and C. Le Bris).
- *Analysis of a prototypical multiscale method coupling atomistic and continuum mechanics*, Mathematical Modelling and Numerical Analysis, vol. 39 (4) 797-826, 2005 (with X. Blanc and C. Le Bris).
- *Long-time averaging for integrable Hamiltonian dynamics*, Numerische Mathematik, vol. 100 (2) 211-232, 2005 (with E. Cancès, F. Castella, Ph. Chartier, E. Faou, C. Le Bris and G. Turinici).
- *High-order averaging schemes with error bounds for thermodynamical properties calculations by MD simulations*, Journal of Chemical Physics, vol. 121 (21) 10346-10355, 2004 (with E. Cancès, F. Castella, Ph. Chartier, E. Faou, C. Le Bris and G. Turinici).
- *Numerical homogenization of nonlinear viscoplastic two-dimensional polycrystals*, Computational and Applied Mathematics, vol. 23 (2-3) 309-325, 2004.
- *Designing reversible measure invariant algorithms with applications to molecular dynamics*, Journal of Chemical Physics, vol. 117 (23) 10452-10464, 2002 (with R. Monneau).

TALKS

- Aerospace Engineering and Mechanics department, University of Minnesota (Minneapolis, April 2006)
- Atomistic to Continuum Coupling Methods workshop (Albuquerque, March 2006)
- Groupe de travail Méthodes Numériques (laboratoire Jacques-Louis Lions, February 2006)
- GdR CHANT workshop (Grenoble, January 2006)
- Culminating workshop of the IPAM program “Bridging Time and Length Scales in Materials Science and Bio-Physics” (Lake Arrowhead, December 2005)
- Workshop Meshfree Methods for Partial Differential Equations (Bonn, September 2005)
- Sandia National Laboratories internal seminar (Albuquerque, July 2005)
- “Foundations of Computational Mathematics” conference (Santander, July 2005).
- Dynamical Systems seminar of the University of Minnesota (Minneapolis, May 2005)

- IMA workshop on “Atomic motion to macroscopic models” (Minneapolis, April 2005)
- Workshop Multiscale numerical methods for advanced materials, MultiMat european network (Paris, march 2005)
- Moleküle im Rechner seminar (FU Berlin, December 2004)
- conference “Molecular simulation: Algorithmic and Mathematical aspects” (Paris, December 2004)
- XXI International Congress of Theoretical and Applied Mechanics (Warsaw, August 2004, poster)
- Minisymposium “Introduction au CEMRACS 2004”, Canum 2004 (Obernai, June 2004)
- SIAM Conference on “Mathematical Aspects of Materials Science” (Los Angeles, May 2004, poster).
- Cecam workshop on “Accelerating Dynamical Simulations” (Lyon, March 2004)
- Workshop on Discrete Atomistic Models and Their Continuum Limits (Berlin, December 2003)
- Workshop on Structural Dynamical Systems (Bari, June 2003)
- CECAM workshop “Reactive classical potentials versus hybrid methods” (Lyon, June 2003).
- 2nd Symposium on Computational Modeling of Multi-Scale Phenomena (Petropolis, August 2002)
- Canum 2002 (Biarritz, May 2002)

TEACHING ACTIVITIES

2002-2004 and 2005-	B.S. course on analysis at the ENPC (since 2005, 35h for first-year students at the ENPC): Banach and Hilbert spaces, Lebesgue integral, distributions, solving the Poisson problem, Fourier transformation.
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