Jean-Marie Aubry, PhD
Associate Professor in Mathematics
Date of birth: September 12th, 1972
Nationality: French

Curriculum Vitae

Contact information

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Current Employment: Teaching & Administrative duties

- Researcher at the Laboratory of Applied Mathematical Analysis, University of Paris 12, France.

  Research topics: functional analysis, multifractal analysis, wavelet techniques, signal processing, statistics.

- Undergraduate and postgraduate teaching in the Departments of Mathematics, Economics and Medicine in: calculus, linear algebra, probabilities, statistics, optimization in finite and infinite dimensions, complex analysis (single variable), algebra (finite groups and Galois theory).

- Postgraduate (Ph.D.) co-supervision for students in Paris and the University of Liège, Belgium.

- Member of the recruiting committee in mathematics at the University of Paris 12.

- Foreign Expert for the recruiting committee in mathematics at the University of Liège.

- Member of the laboratory (LAMA UMR 8050) advisory board.

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- Since 2005: co-organiser of the bi-monthly seminar on multifractal analysis at the University of Paris 12.

- Member of the "StatQuant" research group on quantum statistics - National Research Agency-funded multi-university project.

- 2007: Consulting in statistics (chemometry) with Chopin Technologies.

Education and academic career

- **2009:** Habilitation thesis, University of Paris 12.
  <u>Title:</u> Techniques in multifractal and functional analysis.

  (A habilitation thesis is a summary work of all the candidate's academic research to date and is required in France to attain full professorship).

- **Since 2000:** Associate Professor at the University of Paris 12, France.

- **1998–2000:** Visiting Researcher and Assistant Professor (Post-doc), University of California at Davis, USA. Research contract with the Stanford Research Institute on fractographic analysis.

- **1995–1998:** Ph.D., École Nationale Superieure of Cachan and Commissariat à l'Énergie Atomique (Nuclear Research Center), Bruyères-le-Châtel.
  <u>Title:</u> Developments in multifractal theory.

- **1994–1995:** Masters in Applied Non Linear Analysis, University of Paris 9–Dauphine and École Polytechnique.

- **1992–1994:** École Polytechnique, Palaiseau, France.

- **1991–1992:** Military service as an officer in the Firefighters Brigade of Paris.

- **1989–1991:** Preparatory School, Lycée Hoche, Versailles.

- **1989:** Scientific Baccalauréat.

International conferences & seminars

- **2008:** visiting researcher for 1 month at the University of Liège, Belgium.

- **2008:** <u>invited speaker</u>, 7th World Congress in Probability and Statistics, Singapore.

- **2008:** invited speaker, seminar on Functional Analysis, University of Trier, Germany.

- **2007:** invited speaker, seminar on functional analysis, University of Paris 6–Jussieu, France.

- **2007:** invited speaker, congress on Fractals and Functional Analysis, Liège, Belgium.

- **2007:** Congress "Mathematics in the Modern World", Novossibirsk, Russia.

- **2007:** Congress on Fractals and Related Fields, Monastir, Tunisia.

- **2007:** invited speaker, FNRS meeting on functional analysis, Esneux, Belgium.

- **2006:** invited speaker, Congress ICMAA, Bangkok, Thailand.

- **2005:** Congress on Self-similarity and Applications, Toulouse, France.

- **2004:** Congress on Wavelets and Fractals, Monastir, Tunisia.

- **2004:** Math and Stats days of the SMAI, Nancy, France.

- **2003:** Congress on Fractal Geometry and Stochastics III, Friedrichroda, Germany.

- **2002:** invited speaker, Congress GIRAGA IX, Yaoundé, Cameroon. Mini-course (6h) signal processing using wavelets and multifractals.

- **2002:** Congress on Self-similarity and Applications, Clermont-Ferrand, France.

- **2001:** Invited researcher for three months, UC Davis, USA.

- **2001:** Congress on Wavelets and Fractals, Monastir, Tunisia.

- **2000:** IEEE conference on signal processing, San Diego, USA.

List of publications

[1] J.-M. Aubry and F. Bastin. Diametral dimension of some pseudoconvex multiscale spaces. Submitted to Studia Math., 2009.

[2] J.-M. Aubry and F. Bastin. A walk from multifractal analysis to functional analysis with S^ν spaces, and back. To appear in the proceedings of FARF 2007 in Monastir, 2009.

[3] J.-M. Aubry, C. Butucea, and K. Meziani. State estimation in quantum homodyne tomography with noisy data. *Inverse Problems*, 25(1):1–22, 2009.

[4] J.-M. Aubry and F. Bastin. Advanced topology on the multiscale sequence spaces S^ν. *J. Math. Anal. Appl.*, 350:439–454, 2009.

[5] J.-M. Aubry. Ultrarapidly decreasing ultradifferentiable functions, Wigner distributions and density matrices. *J. London Math. Soc.*, 78(2):392–406, 2008.

[6] J.-M. Aubry, F. Bastin, and S. Dispa. Prevalence of multifractal functions in S^ν spaces. *J. Fourier Anal. Appl.*, 13(2):175–185, 2007.

[7] J.-M. Aubry, F. Bastin, S. Dispa, and S. Jaffard. The spaces S^ν: new spaces defined with wavelet coefficients and related to multifractal analysis. *Int. J. Appl. Math. Statist.*, 7:82–95, Feb. 2007.

[8] J.-M. Aubry. On the rate of pointwise divergence of Fourier and wavelet series in L^p. *J. Approx. Theory*, 538(1):97–111, 2006.

[9] J.-M. Aubry, F. Bastin, S. Dispa, and S. Jaffard. Topological properties of the sequence spaces S^ν. *J. Math. Anal. Appl.*, 321(1):364–387, Sept. 2006.

[10] J.-M. Aubry, A. Grünbaum, T. Kobayashi, N. Saito, and D. A. Shockey. Fractographic analysis of high-cycle fatigue in aircraft engines. Technical report, SRI International, Jan. 2000.

[11] J.-M. Aubry and S. Jaffard. Random wavelet series. *Comm. Math. Phys.*, 227(3):483–514, 2002.

[12] J.-M. Aubry and S. Jaffard. Random wavelet series: Theory and applications. To appear in Ann. Blaise Pascal, 2004.

[13] J.-M. Aubry and N. Saito. Wavelet despiking of fractographs. In A. Aldroubi, A. F. Laine, and M. A. Unser, editors, *Wavelet Applications in Signal and Image Processing VIII*, volume 4119 of *SPIE Proceedings Series*, pages 853–860. SPIE, 2000.

[14] J.-M. Aubry. Representation of the singularities of a function. *Appl. Comput. Harmon. Anal.*, 6(2):282–286, 1999.

[15] J.-M. Aubry. Traces of oscillating functions. *J. Fourier Anal. Appl.*, 5(4):331–345, 1999.

[16] J.-M. Aubry. *Quelques développements de la théorie des multifractales.* Thèse de doctorat, École Normale Supérieure de Cachan, 1998.

Other competencies

- Languages: French and English fluent, German competent.

- Computer: Unix system administration (Linux and MacOS X), LaTeX, HTML, Ruby, SQL, C, C++.

- Private Pilot Licence (single engine piston planes)

- Reached top 200 (out of 8000) in the 2008 European Space Agency astronaut selection program.

- Clarinettist in an amateur orchestra.