

## Curriculum vitæ

### Jean-Pierre FOUQUE

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Born: July 3, 1954, Aubagne, France  
French and US citizen

#### Education:

Graduate Studies at the University Pierre et Marie Curie (Paris 6).

- Ph.D. in Mathematics (Doctorat de troisième cycle), Paris 6, 1979.  
Advisor: Professor Nicole El Karoui  
Title: **Régularité des trajectoires des amarts et hyperamarts réels.**
- Doctorat ès-Sciences Mathématiques, Paris 6, 1986.  
Chairman of the examining board: Professor Jacques Neveu  
Title: **Sur trois aspects de la théorie des processus stochastiques.**

#### Positions:

- 2006 - : Distinguished Professor, Statistics & Applied Probability, Co-Director of the *Center for Financial Mathematics and Actuarial Research* (CFMAR), at the University of California Santa Barbara.
- 2003 (Spring) and 2004-2005 : Interim Head, Department of Mathematics, NCSU.
- 2002-2005 : Director, Financial Mathematics Program, NCSU.
- 2001-2005 : Professor of Mathematics, NCSU.
- 1998-2001 : Associate Professor of Mathematics, NCSU.
- 1989-98 : Chargé de Recherche C.N.R.S. and Maître de Conférences at the Ecole Polytechnique, France.

- 1982-89: Chargé de Recherche C.N.R.S., Laboratoire de Probabilités, Université de Paris 6, France.
- 1980-82: Visiting Assistant Professor at the Ohio State University.

**1996-97:** Sabbatical year: Stanford University (NATO grant).

**Visiting positions** at the University of California Irvine:

- Spring 85 and 89: Assistant Professor
- Fall 90 and 91: Associate Professor
- Fall 92: Professor

**Professional Affiliations:**

- American Mathematical Society (AMS)
- Institute of Mathematical Statistics (IMS)
  - *FELLOW since 2009.*
- Society for Industrial and Applied Mathematics (SIAM)
  - *Chair of the SIAG Financial Mathematics and Engineering (1/1/2009 - 12/31/2010).*
  - *FELLOW since 2011.*
- Bachelier Finance Society (BFS)
  - *Plenary speaker at the Sixth World Congress in Toronto, Canada, June 2010.*
  - *Council member 2014-17*
  - *Vice-President 2016-18*
  - *President 2018-20*
- Member of the *Financial Research Advisory Committee* for the *Office of Financial Research (OFR)* at the U.S. Department of the Treasury (2012-2015).
- *Institut Louis Bachelier FELLOW since 2021.*

### Editorial Activities:

- Co-Editor of the Israel Mathematical Conference Proceedings (Vol. **10**) on *Stochastic Analysis: Random Fields and Measure-Valued Processes*, 1996, Bar-Ilan University.
- Editor of the NATO Science Series C, Vol. **531**, *Diffusive Waves in Complex Media*, 1999, Kluwer.
- Co-Editor of the Volume XXX of *ESAIM Probability & Statistics*, Stochastic analysis and mathematical finance, 2007.
- Co-Editor of the Volume **22** of *Advances in Econometrics*, 2008.
- Associate Editor of the *Annals of Applied Probabilities*, 2006-2012.
- Member of the *SIAM Book Editorial Board*, 2009-2013.
- Associate Editor of the *SIAM Journal on Financial Mathematics*, 2008-2014.
- Editor-in-Chief of the *SIAM Book Series on Financial Mathematics*, 2013-2014.
- Member of the *SIAM Book Series on Financial Mathematics Editorial Board*, 2015-.
- Editor-in-Chief of the *SIAM Journal on Financial Mathematics*, 2015-2020.
- Associate Editor of the *SIAM Journal on Financial Mathematics*, 2021-.

### Grants:

- NSF-CNRS grant with Professor René Carmona from UCI on: **Stochastic Partial Differential Equations. Approximations and Properties.** 1992–95.
- Arc-en-Ciel grant with Professor Ely Merzbach from Bar-Ilan University, Israel. 1994-95.
- NATO grant for the sabbatical year 1996–97.
- NCSU, Faculty Research and professional Development (FR&PD). *Financial Mathematics*, 1999.
- NSF/DMS 0071744: **Asymptotic Methods in Financial Mathematics**, 2000–2003.
- ONR (N00014-02-1-0089): **Time-Reversal for Waves in Radom Media**, 2001–2005.
- DARPA/ONR (N00014-02-1-0739): **Time-Reversal for Electromagnetic Waves in Complex Media**, 2002–2003.
- Sloan grant for developing a new **Professional Scientific Masters in Financial Mathematics**, 2002–2005.

- NSF/DMS 0455982-**FRG: Collaborative Research on Mathematical Methods for Defaultable Instruments**, 2005–2008.
- ONR (N00014-05-1-0442): **Time-Reversal for Waves in Radom Media**, 2005–2009.
- NSF/DMS 0806461: **Collaborative Research: Small time behavior of multiscale diffusions motivated by stochastic volatility models**, 2008–2011.
- NSF/DMS 1107468: **Financial Mathematics: Nonlinear problems and systemic risk**, 2011–2014.
- NSF/DMS 1409434: **Systemic Risk and Nonlinear Problems in Financial Mathematics**, 2014–2018.
- NSF/DMS 1613004: **PIMS Summer School 2016 in Financial Mathematics**, 2016.
- NSF/DMS 1814091: **Systemic Risk and Mean Field Games**, 2018–2021.
- NSF/DMS 1953035: **Machine Learning Theory and Algorithms for Differential Games, Applications in Economics**, Co-PI, PI: R. Hu, 2020–2023.

#### Organization of Conferences:

- International Conference “**Brownian sheet: New results and developments**”, Israel, september 1993, co-editor of the proceeding (Israel Mathematical Conference Proceedings, Volume 10, 1996).
- Math-Physics Workshops on **Wave propagation in random media**, Ecole Polytechnique, June 1994 and November 1995.
- Director of the NATO Advanced Study Institute on **Diffusive Waves in Complex Media**, Les Houches, France (March 1998).  
Editor of the NATO Science Series C, Vol. 531 (1999), Kluwer.
- Workshop on **Research in Financial Mathematics and Engineering**, NCSU, May 24, 2001.
- Conference on **Random Phenomena in Applied Mathematics** in honor of George Papanicolaou, Stanford, January 24-26, 2003.
- Conference on **Stochastic Analysis and Mathematical Finance** in honor of Nicole Elkaroui, Paris, June 2-4, 2004.
- Workshop on **Mathematical Finance**. CRM Montreal, June 1-5, 2005.
- SAMSI Program in **Financial Mathematics, Statistics and Econometrics**, Fall semester 2005.

- Co-organizer of the special session on **Financial Mathematics** at the *AMS annual meeting* in New Orleans, January 5-6, 2007.
- Co-organizer of the special session on **Financial Mathematics** at the *AMS annual meeting* in San Diego, January 8-9, 2008.
- Co-organizer of the 2nd **Princeton Credit Risk Conference** May 23-24, 2008 (NSF-FRG: *The Mathematics of Defaultable Securities*).
- Co-organizer of the Conference on **Stochastic Analysis and Applications: from Mathematical Physics to Mathematical Finance** in honor of René Carmona. Princeton, 13-15 June 2008.
- Co-organizer of the **NSF/CBMS Regional Conference in the Mathematical Sciences on Convex Duality Methods in Mathematical Finance**. June 22-27, 2008 at UCSB.
- Member of the Scientific Committee of the 2nd **SIAM Conference in Financial Mathematics**, Rutgers University, November 21-22, 2008.
- Chair of the organizing committee of the **Third Western Conference on Mathematical Finance**, Santa Barbara, CA, November 13-14, 2009.
- Co-Chair of the Scientific Committee of the 3rd **SIAM Conference in Financial Mathematics**, San Francisco, November 12-13, 2010.
- Co-organizer of the conference **Recent Developments in Applied Mathematics**, Stanford University, January 25-27, 2013.
- Co-organizer of the special sessions on **Financial Mathematics** at the joint *IMU-AMS meeting* in Israel, June 16-19, 2014.
- Co-organizer of the *Second Bar-Ilan Conference on Financial Mathematics*, Israel, June 20-21, 2016.
- Co-organizer of the *Conference for the 10th anniversary of the Center for Financial and Actuarial Research*, Santa Barbara, CA. May 19-21, 2017.
- Co-organizer of the *Third Bar-Ilan Conference on Financial Mathematics*, Israel, May 30-31, 2018.
- Co-organizer of the 2022 CFMAR Workshop, UCSB, September 29-30, 2022.  
<https://sites.google.com/view/2022-cfmar-workshop>

**Masters students:**

- B. Weir, NCSU, Math., April 2000.
- J. Dai, NCSU, Math., June 2002.
- K. Mehta, NCSU, EE, May 2003.
- A. Mathur, NCSU, OR/Math, Dec. 2005.
- Financial Mathematics Masters students at NCSU: four graduated in 2004, seven graduated in 2005.

**Ph.D. students:**

- Jean-François Clouet, Ph.D. Ecole Polytechnique, December 1994.
- José Chillan, Ph.D. Ecole Polytechnique, June 1996.
- Florence Bailly, Ph.D. Orsay University, Paris XI, December 1996.
- Josselin Garnier, Ph.D. Ecole Polytechnique, December 1996.
- Jean Ndzie, Ph.D. Paris VI University, January 1999.
- Tracy Tullie, Ph.D. NCSU, June 2002.
- Chuan-Hsiang (Sean) Han, Ph.D. NCSU, June 2003.
- Xianwen (Stephen) Zhou, Ph.D. NCSU, February 2006.
- Petr Glotov, Ph.D. NCSU, February 2006.
- Doug Vestal, Ph.D. UCSB, June 2008.
- Brian Wignall, Ph.D. UCSB, June 2009.
- Eli Kollman, Ph.D. UCSB, June 2009.
- Matt Lorig, Ph.D. UCSB, May 2011.
- Winslow Strong, Ph.D. UCSB, June 2011.
- Raj Sau, Ph.D. UCSB, June 2012.
- Bin Ren, Ph.D. UCSB, February 2013.
- Chunkai Gao, Ph.D. UCSB, April 2013.

- Li-Hsien Sun, Ph.D. UCSB, April 2014.
- Yuri Saporito, Ph.D. UCSB, August 2014.
- Matthew Hancock, Ph.D. UCSB, September 2014.
- Jacob Serup, Ph. D. UCSB, June 2015.
- Yi-Tai Chiu. Ph.D. UCSB, June 2015.
- Ruimeng Hu, Ph.D. UCSB, May 2018.
- Ning Ning, Ph.D. UCSB, May 2018.
- Zhaoyu Zhang, Ph.D. UCSB, June 2019.
- Andrea Angiuli, Ph.D. UCSB, September 2021.
- Yichen Feng, Ph.D. UCSB, December 2022.
- Jimin Lin, Ph.D. UCSB, November 2023.
- In progress at UCSB: Mengrui Zhang.

**Invited Lectures and Seminars (since 1998):**

- NCSU Probability Seminars, October 5 and 12, 1998.
- Invited lecture in the Fourth Annual International Press Lecture Series: stochastic differential equations and their use in financial mathematics. Irvine, CA. November 5-7, 1998.
- NCSU Operation Research Seminar, February 8, 1999.
- Invited lecture in the French-Israeli Conference on SPACE: Frontiers of Interdisciplinary Research and Applications. Session on Stochastic processes in honour of Professor Alain Bensoussan. Bar Ilan University, Israel. March 21-22, 1999.
- Invited lecture in the SIAM Conference on Mathematical and Computational Issues in the Geosciences. Minisymposium on Waves in Multiscale Media. San Antonio, Texas. March 24-27, 1999.
- UNC Chapel Hill, Center for Stochastic Processes Seminar, April 14, 1999.
- Invited lecture in the International Conference on Mathematical Finance, Hammamet, Tunisia. June 14-18, 1999.

- Ecole Polytechnique, France, Probability Seminar. June 21, 1999.
- Invited lecture in the Third Seminar on Stochastic Analysis, Ascona, Switzerland. September 20-24, 1999.
- Invited lecture in the Minisymposia on Mathematics and Finance, SIAM Southeast Regional Mathematics in industry Workshop, NCSU Raleigh, October 10-12, 1999.
- Brown University Applied Mathematics Seminar, November 9, 1999.
- Invited lecture in the Hotelling Triangle Econometrics Conference, Raleigh-Durham, December 10, 1999
- NCSU Probability Seminar and Seminar Series in Financial Mathematics and Engineering, January 24, 2000.
- Ecole Polytechnique, France, Seminar on Stochastic Models in Finance. March 13, 2000.
- Workshop “Frontières en Finance”, Paris (March 17, 2000) and London (June 9, 2000).
- Workshop on Financial Mathematics, Stanford University, April 29-30, 2000.
- Mathematics Colloquium, Bar Ilan University, Israel, May 2000.
- Mathematical Geophysics Summer School at Stanford: *Time-reversal in randomly layered media*. August 2000.
- Workshop on Mathematical Finance, Universität Konstanz, Germany. October 5-7, 2000.
- Purdue University Mathematics Seminar, October 16, 2000.
- MathWeek 2000, RISK’s 2nd Annual Conference on Innovative Research in Derivatives Modelling and Analysis. Master Class, New York November 13, 2000 and London November 27, 2000.
- Ecole Thématique CNRS-GDR-FIQUAM. L’interface entre données et modèles en finance: Calibration, corrélation et mesures des risques. Aussois, France, 10-15 Décembre 2000.
- Columbia University Probability Seminar, April 6, 2001.
- Workshop on *Imaging in noisy environments*, Crete, June 19-21, 2001.
- Conference on Stochastic Processes and their Applications, Cambridge University, UK, July 9-13, 2001.
- AMS/SMF joint congress, special session on *Mathematical Methods in Financial Modeling*. Lyon, France, July 17-20, 2001.



- IMPA, Rio de Janeiro, Brazil: Colloquium on Financial Mathematics and Seminar on Computational Mathematics, Nov. 16 and 17, 2001.
- MathWeek 2001, RISK's 3rd Annual Conference on Innovative Research in Derivatives Modelling and Analysis. New York November 7, 2001 and London November 28, 2001.
- Workshop at MSRI: *Inverse Problems and Applications*, November 16, 2001.
- Invited lecture in the Triangle Econometrics Conference, Raleigh-Durham, December 7, 2001.
- Integrable Systems Seminar, Duke University, January 17, 2002.
- UC Santa Barbara, joint Colloquium Mathematics, Statistics and Applied Probability. February 13, 2002.
- UC Irvine, Mathematics Colloquium. February 14, 2002.
- AMS Meeting, Ann Arbor MI, Session on Financial Mathematics, March 2, 2002.
- Princeton University, Applied and Computational Mathematics, Time Frequency Seminar, March 12, 2002.
- International Conference on Differential Equations and Mathematical Physics, University of Alabama, Birmingham. Session on Inverse Problems, March 26, 2002.
- Fourth Seminar on Stochastic Analysis, Random Fields and Applications. May 19-24, 2002, Ascona, Switzerland. Invited speaker for the "public lecture" on financial mathematics (Centro Studi Bancari Lugano, May 24, 2002).
- Annual SIAM Meeting, talks on financial mathematics and time reversal for waves in random media. Philadelphia, PA, July 2002.
- Mathematical Geophysics Summer School at Stanford: *Time-reversal super-resolution in randomly layered media*. August 2002.
- Joint Numerical Analysis/Probability Seminar, NCSU, two talks on *Time-Reversal*, September 10 and 17, 2002.
- Applied Mathematics Seminar, UNC Chapel Hill, October 25, 2002.
- Invited lecture in the Triangle Econometrics Conference, Raleigh-Durham, December 6, 2002.
- Invited lecture in the Conference on SPDE's, Institute for Advanced Studies, Princeton, March 3-6, 2003.

- Invited lecture in the ICMS Conference on SDEs and SPDEs: Numerical Methods and Applications. March 1-April 4, 2003, Edinburgh, UK.
- Invited lecture in the AMS-IMA-SIAM Summer Research Conference on Mathematics of Finance, June 22-26, 2003. Snowbird, Utah.
- SAMSI Workshop on Stochastic Computation, Financial Models. June 28, 2003.
- Invited lecture in the Workshop on Time Reversal, UC Irvine, August 8-11, 2003.
- Contributed lecture in the Workshop on Computational Finance, Zürich, September 11-13, 2003.
- NCSU Operation Research/Financial Mathematics Seminar, October 14, 2003.
- Invited lecture in the Tenth Annual CAP Workshop on Derivative Securities and Risk Management, Center for Applied Probability at Columbia University, November 7, 2003.
- Invited speaker in the seminar of the Center for Computational Finance, Carnegie Mellon University, February 23, 2004.
- Workshop “Finance Concepts”, Paris, March 9, 2004.
- Invited lecture in the session on Financial Mathematics, AMS Meeting, Talahasee, FL, March 13, 2004.
- Invited speaker in the *Quantitative Finance Day* at Georgia Institute of Technology, Atlanta, March 26, 2004.
- Invited speaker at the *Cornell Finance Meeting*, Ithaca, NY, March 27, 2004.
- Invited speaker in the minisymposium on *time reversal* at the opening conference of the *Inverse Problems Center* at RPI, NY, April 5, 2004.
- NCSU Probability/Financial Mathematics Seminar, April 23, 2004.
- Invited speaker at the IMA workshop *Risk Management and Model Specifications Issues in Finance*. Minneapolis, April 12-16, 2004
- Invited speaker at the IMA workshop *Model, Implementation, Algorithms and Software Issues*. Minneapolis, May 3-7, 2004
- Invited speaker at the *Conference on Stochastic Analysis and Mathematical Finance in honor of Nicole Elkaroui’s 60th birthday*, Institut Henri Poincaré, Paris, June 2-4, 2004.
- *Conference on Monte Carlo and Probabilistic Methods for PDE’s*, two contributed talks to Minisymposia on *Financial Mathematics*, and *Waves in Random Media*, Juan-les-Pins, France, June 7-10, 2004.

- *Third World Congress of the Bachelier Finance Society*, contributed talk on *Volatility and Default*, Chicago, July 21-24, 2004.
- Invited speaker at the *Workshop on time-reversal communications in richly scattering environments*, American Institute of Mathematics, Palo Alto CA, October 18-22, 2004.
- UNC-Charlotte Seminar on Mathematical Finance, November 12, 2004.
- UC Santa Barbara Seminar Statistics & Applied Probability, December 6, 2004.
- Columbia University Probability Seminar, December 17, 2004.
- University of Texas Austin, Computational Finance Seminar, January 28, 2005.
- Quantitative Finance at the Newton Institute, Cambridge University. Workshop on Credit Risk, February 21-26, 2005.
- Invited three hour mini-course on *Introduction to Financial Mathematics and Volatility Modeling* at the SIAM-SEAS meeting in Charleston SC, March 25-26, 2005.
- Invited talk in the Workshop on *Mathematical Finance*. CRM Montreal, June 1-5, 2005.
- Plenary speaker at the *IX Workshop on Partial Differential Equations, Theory, Computation and Applications*. IMPA, July 18-22, Rio de Janeiro, Brazil.
- Invited speaker at the meeting on *PDE & Finance*, Mittag-Leffler Institute, Stockholm, Sweden. August 15-19, 2005.
- Invited speaker at the Workshop on *Radiative transport and diffusion-approximation: From theory to applications*, CIRM, Marseille, France. September 5-9, 2005.
- SAMSI Workshop on Credit Risk, November 1, 2005.
- Invited talk in the Special Session SIAM-AMS on Time Reversal Methods: Analysis and Applications. AMS Meeting, San Antonio, Texas. January 12-15, 2006.
- Invited speaker in the Seminar Series on Quantitative Finance, The Fields Institute, Toronto, Canada. April 26, 2006.
- Invited plenary talk in the SIAM Conference on Financial Mathematics and Engineering, Boston, July 9-12, 2006.
- Invited Lecturer at the Summer School in *Stochastic Finance*, Island of Chios, Greece, July 17-22, 2006.
- Mathematics Colloquium, USC, September 13, 2006.
- Financial Mathematics Seminar, NC State University, September 22, 2006.

- Mathematical Finance Seminar, University of British Columbia, September 28, 2006.
- Invited talk at the Conference *Numerical and Stochastic Models*, Paris, October 23-25, 2006.
- Economics seminar, Louisiana State University, November 3, 2006.
- Invited talk at the 5th Annual Advances in Econometrics Conference at Louisiana State University, November 4-5, 2006.
- Invited talk at the *Stanford-Tsukuba-WCQF joint workshop*. Stanford University, March 8-10, 2007.
- Invited talk in the special session on *Inverse Problems for Wave Propagation* at the AMS sectional meeting in Tucson, AZ. April 21-22, 2007.
- Invited talk at the *International Workshop on Rare Event Simulation*. University of Nice, France. April 30 – May 4, 2007.
- Invited talk at the workshop *Inverse Problems in Stochastic Differential Equations*, May 22-26, 2007. University of Southern California, Los Angeles.
- Probability seminar, UC Irvine, May 29, 2007.
- Mathematical Finance seminar, University of Texas Austin, August 31, 2007.
- Mathematics Colloquium, Kansas University, September 13, 2007.
- Invited speaker at the Opening Workshop on *Random Media* at SAMSI, NC, September 23-26, 2007.
- Invited speaker at the Conference *Mathematics and Finance: Research in Options*, IMPA, Rio de Janeiro, Brazil, October 21-26, 2007.
- Invited speaker at the *Southern California Probability Symposium*, Irvine, CA, December 1, 2007.
- Invited speaker at the special session in Financial Mathematics, *AMS annual meeting*, San Diego, January 8-9, 2008.
- Financial Mathematics Seminar, Stanford University, April 25, 2008.
- Invited speaker at the Conference on *Stochastic Analysis and Applications: from Mathematical Physics to Mathematical Finance* in honor of René Carmona. Princeton, 13-15 June 2008.
- Invited speaker at the *2008 Daiwa Lecture Series* (Kyoto, 7/29 – 8/1), and *International Workshop on Financial Engineering* (Tokyo, 8/4-5).

- Invited speaker in the *Special Semester on Stochastic with Emphasis on Finance*, RICAM, Linz, Austria, September-December 2008:
  - Tutorial, September 3-6.
  - Kick-off-Workshop, September 8-12.
- Invited speaker at the *Implied Volatility Models Conference* organized by the Bendheim Center for Finance (Princeton University). Huntington Beach, CA, October 10-11, 2008.
- Invited speaker at the *2nd Western Conference in Mathematical Finance*, Austin, TX. October 31 - November 2, 2008.
- Invited speaker at the *SIAM Conference on Financial Mathematics and Engineering*, New Brunswick, NJ, November 21-22, 2008.
- Invited speaker at the Conference *Mathematics and Finance: Research in Options*, Angra dos Reis, Rio de Janeiro, Brazil, November 23-27, 2008.
- Plenary speaker at *QMF (Quantitative Methods in Finance) 2008*, Sydney, Australia, December 17-20, 2008.
- Mathematics Colloquium, University of Tennessee, Knoxville. January 30, 2009.
- Plenary speaker at the *Conference on small time asymptotics, perturbation theory and heat kernel methods in mathematical finance*, Wolfgang Pauli Institute (WPI) Vienna, Austria, February 10-12, 2009.
- Seminar of the Department of Systems Engineering and Engineering Management, The Chinese University of Hong Kong, March 19, 2009.
- Invited talk at the National Center for Theoretical Sciences, Taiwan, March 23, 2009.
- Applied Mathematics Colloquium at the National Chia-Tung University, Taiwan, March 24, 2009.
- Invited talk at the Academia Sinica, Taipei, Taiwan, March 25, 2009.
- Statistics/Operations Research/Math Finance Seminar, Claremont Graduate University, CA. April 9, 2009.
- Mathematical Finance Colloquium, University of Southern California, April 10, 2009.
- Seminar of the IEOR Department at the University of California Berkeley, May 1st, 2009.
- Applied Mathematics Seminar at Stanford University, May 15, 2009.
- Plenary speaker at the Conference: Modeling High Frequency Data in Finance. Stevens Institute of Technology, Hoboken, NJ. July 10-12, 2009.

- Guest lecturer at Bar Ilan University, Israel, July 17–August 10, 2009.
- Invited speaker at the Conference *Mathematics and Finance: Research in Options*, Buzios, Brazil, November 23-25, 2009.
- Seminar at the Laboratoire Jean Kuntzmann, Grenoble, France, December 18, 2009.
- Invited speaker, IPAM “New Directions in Financial Mathematics”, Los Angeles, January 5-8, 2010.
- Colloquium talk at the Department of Mathematics, Wayne State University, Detroit, Michigan, March 22, 2010.
- Conference at the Operations Research Society of Japan, Tokyo, April 22, 2010.
- Plenary speaker at the *Bachelier Finance Society Congress*, Toronto, June 22-26, 2010.
- Invited discussant at the Conference *Contemporary Issues and New Directions in Quantitative Finance*, Oxford-man Institute, Oxford, UK, July 11-13, 2010.
- Mini course at the *Third SMAI European Summer School in Financial Mathematics*, Paris, 23-27 August 2010.
- Invited discussant at the *Texas Quantitative Finance Festival*, Austin, Texas, November 6, 2010.
- Two invited minisymposium talks at the *Annual INFORMS Meeting*, Austin, Texas, November 7, 2010.
- Invited speaker at the Conference *Mathematics and Finance: Research in Options*, Angra dos Reis, Rio de Janeiro, Brazil, November 27 - December 2, 2010.
- Invited speaker at the Conference *Modeling and Managing Financial Risks*, Paris, January 10-13, 2011.
- Invited speaker at the *International Conference on Malliavin Calculus and Stochastic Analysis in Honor of Professor David Nualart*, University of Kansas, March 19-21, 2011.
- Plenary speaker at the *35th SIAM Southeastern Atlantic Section Conference*, University of North Carolina at Charlotte, March 26-27, 2011.
- Invited speaker at the *Orfalea College of Business Seminar Series*, California Polytechnic State University, San Luis Obispo, CA, April 8, 2011.
- Financial Mathematics Seminar, Stanford University, April 29, 2011.
- Plenary speaker at the *Conference on Stochastic Analysis in Finance and Insurance*, University of Michigan, Ann Arbor, May 17-20, 2011.

- Two minisymposia invited talks at the ICIAM 2011, Vancouver, Canada. July 18-22, 2011.
- Plenary speaker at the Conference: Modeling High Frequency Data in Finance 3. Stevens Institute of Technology, Hoboken, NJ. July 28-31, 2011.
- Colloquium, Department of Mathematics, Ohio State University. Columbus, OH, September 19, 2011.
- Invited speaker at the Conference *Mathematics and Finance: Research in Options*, Angra dos Reis, Rio de Janeiro, Brazil, November 28-30, 2011.
- Plenary speaker at *QMF (Quantitative Methods in Finance) 2011*, Sydney, Australia, December 13-16, 2011.
- Plenary speaker at the *RiskLab-Madrid Meeting on Financial Risks*, Madrid, Spain, May 24, 2012.
- Plenary speaker at the *IMS Workshop on Probability and Statistics in Finance*, UC Berkeley, CA. May 30-31, 2012.
- Invited talk in the minisymposium on “Systemic Risk” at the 2012 SIAM meeting, Minneapolis MN, July 9-11, 2012.
- Invited speaker in the *Workshop on Mathematical Finance and Related Issues*, Kyoto Research Park, Kyoto, Japan, September 2-5, 2012.
- Seminar talk at the *Center for Advanced Research in Finance*, University of Tokyo, Japan, September 10, 2012.
- Invited speaker, *de Finetti Seminar Series*, University of Milano, Italy, October 8, 2012.
- Plenary speaker, Workshop *Sequential Monte Carlo Methods and Efficient Simulation in Finance*, Ecole Polytechnique, France, October 10-12, 2012.
- Seminar talk at Georgia Tech, Atlanta, October 31, 2012.
- Seminar talk at the University of Michigan, November 1, 2012.
- Seminar talks (2) at Yonsei University, Seoul, South Korea, November 27, 29, 2012.
- Plenary speaker at the Conference *Frontiers in Financial Mathematics*, Dublin, Ireland, June 4-7, 2013.
- Plenary speaker at the Workshop on *Knightian Uncertainty and Risk Measures*, Institute for Mathematical Sciences, National University of Singapore, July 1-5, 2013.

- Colloquium talk at the Tata Institute for Fundamental Research, Mumbai, India, September 11, 2013.
- Invited speaker in the *Berlin Probability Colloquium*, Germany, October 23, 2013.
- Invited speaker at the Workshop *Mathematics for New Economic Thinking*, Fields Institute, Toronto, Canada, October 31, 2013.
- Seminar talk in the seminar series of the *Control, Dynamical Systems, and Computation Center* (CDCC), UCSB, November 22, 2013.
- Seminar talk, Statistics Department, Chinese University of Hong Kong, December 13, 2013.
- Plenary speaker: Special Sessions in Financial Mathematics at the Joint AMS-IMU Conference, Israel, June 16, 2014.
- Colloquium talk, Institute for Mathematical Behavioral Finance, UC Irvine, October 23, 2014.
- Invited talk, minisymposium SIAM FME meeting, Chicago, November 13-15, 2014.
- Plenary talk at *UNSW-CSIRO Workshop, Risk: Modelling, Optimization, Inference*, Sydney, December 11-12, 2014.
- Plenary talk at *QMF (Quantitative Methods in Finance) 2014*, Sydney, Australia, December 17-20, 2014.
- Plenary talk at the *Symposium on Financial Risk Management*, Chinese University of Hong Kong, December 22-23, 2014.
- Plenary talk at *Workshop on Systemic Risk*, Columbia University, May 4-5, 2015.
- Plenary talk at the *Third Asian Quantitative Finance Conference*, Hong Kong, July 6-8, 2015.
- Plenary speaker at the *Mathematics Institute of the Academia Sinica*, Taipei, Taiwan, July 10, 2015.
- Inaugural Lecture, Seminar on *Mathematical Finance, Risk and Uncertainty*, Urbana-Champaign, Illinois, September 14, 2015.
- Plenary talk at the *7th Western Conference on Mathematical Finance*, UT Austin, October 30-31, 2015.
- Plenary talk at the *Byrne Workshop on Stochastic Analysis in Finance and Insurance*, University of Michigan, June 6-10, 2016.



- Plenary Talk at the Workshop *At the Frontiers of Quantitative Finance*, ICMS, Edinburgh, UK, June 27-30, 2016.
- Plenary Talk at the *20th International Congress on Insurance: Mathematics and Economics*, Atlanta, July 25-27, 2016.
- Seminar talk: Interdisciplinary Research Institute MS2Discovery, Wilfrid Laurier University, Waterloo, Canada, May 11, 2017.
- Seminar talk: Office of Financial Research, Washington DC, May 25, 2017.
- Seminar talk at the CMAP Ecole Polytechnique, Palaiseau, France, June 26, 2017.
- Invited talk at the *IPAM Workshop on Mean Field Games*, UCLA, August 30, 2017.
- Invited talk at the *Jim Gatheral's 60th Birthday Conference*, NYU, October 14, 2017.
- Seminar talk at Johns Hopkins University, Applied Mathematics and Statistics, Baltimore, MD, April 12, 2018.
- Seminar talk at Rutgers University, Financial Mathematics, NJ, April 17, 2018.
- Seminar talk at the University of Illinois Chicago, Probability/Statistics, Chicago, April 18, 2018.
- Plenary talk at the *3rd PKU-NUS Annual International Conference on Quantitative Finance and Economics*, Peking University, China, May 12-13, 2018.
- Seminar talk at HU and TU, Mathematics, Berlin, Germany, May 31, 2018.
- Plenary talk at the *Symposium on Optimal Stopping*, Rice University, Houston, TX, June 26-28, 2018.
- Seminar talk at ORFE, Princeton, NJ, September 9, 2018.
- Plenary talk at the *9th Western Conference on Mathematical Finance*, USC, Los Angeles, November 16-17, 2018.
- Plenary talk at *Research in Options*, Buzios, Brazil, November 26-28, 2018.
- Seminar talk at the *Fields Institute*, Toronto, Canada, March 27, 2019.
- Colloquium talk at *McMaster University*, Hamilton, Canada, March 29, 2019.
- Plenary talk at the *Conference in Honor of the 75th Birthday of Nicole El Karoui*, Paris, May 21-24, 2019.
- Invited talk at the *International Workshop on Stress Test and Risk Management*, Paris, May 28-29, 2019.

- Seminar talk at NC State University, Raleigh, NC, September 20, 2019.
- Seminar talk at *Macquarie University*, Sydney, Australia, December 4, 2019.
- Mini-course for Graduate Students at *Macquarie University*, Sydney, Australia, December 9, 2019.
- Invited talk at the *Risk Workshop 2019, UNSW-Macquarie University*, Sydney, Australia, December 12, 2019.
- Plenary talk at *QMF 2019*, Sydney, Australia, December 20, 2019.
- Invited talk at the *Special Session on Mean Field Games, 2020 AMS Annual Meeting*, Denver, CO, January 7, 2020.
- Invited talk at the *SIAM/SIAG/FME bi-monthly virtual seminar*, June 25, 2020.
- Plenary talk at the *Virtual Seminar on Stochastic Analysis, Random Fields and Applications*, July 3, 2020.
- Invited talk at the *Minisymposium Stochastic and Mean-Field Game, SIAM Annual meeting 2020*, virtual, July 16, 2020.
- Seminar virtual talk at UC Davis, Statistics department, October 22, 2020.
- Invited speaker at the *Research In Options (RIO)*, Brazil, virtual, November 29, 2020.
- Plenary talk at the *SIAM Meeting on Financial Mathematics and Engineering*, Virtual, June 1-4, 2021.
- Colloquium virtual talk at Texas Tech, October 14, 2021.
- Invited speaker at the *Research In Options (RIO)*, Brazil, virtual, November 21, 2021.
- Invited speaker at the workshop on *Applications to Financial Engineering*, part of the program on *Distributed Solutions to Complex Societal Problems* at the *Institute for Mathematical and Statistical Innovation (IMSI)*, Chicago, IL, December 6-9, 2021.
- Virtual seminar talk at Amazon Santa Barbara, March 25, 2022.
- Invited speaker at the workshop on *Advances in Decision Making and Uncertainty* at the *Institute for Mathematical and Statistical Innovation (IMSI)*, Chicago, IL, March 28-April 1, 2022.
- Invited speaker at the workshop on *Advances in Machine Learning and Mean Field Games* at the *Institute for Mathematical and Statistical Innovation (IMSI)*, Chicago, IL, May 23-26, 2022.

- Invited seminar talk (virtual), NTU Singapore, May 30, 2022.
- Plenary talk (virtual) at *Statistical Methods in Finance 2022*, India, July 1st, 2022.
- Plenary talk at the Conference on *Stochastic Control and Quantitative Finance*, Hebrew University of Jerusalem, Israel, September 12-15, 2022.
- Invited talk in the *Machine Learning and Monte Carlo Methods meet Economics and Finance Mini-Conference*, UCSB, November 28, 2022.
- Invited talk in the *Financial Mathematics Seminar*, North Carolina State University, Raleigh, NC, February 10, 2023.
- Invited talk in the *Applied Mathematics Colloquium*, Illinois Institute of Technology, Chicago, IL, February 13, 2023.
- Seminar talk in the Department of Mathematics, NTHU, Hsinchu, Taiwan, March 6, 2023.
- Keynote speaker at the *International Conference and Workshop of Machine Learning in Quantitative Finance*, NCCU, Taipei, Taiwan, March 7, 2023.
- Seminar talk at the National Sun Yat-sen University, Kaohsiung, Taiwan, March 9, 2023.
- Invited talk in the *De Finetti Seminar*, University of Milano, Italy, May 3, 2023.
- Invited talk in the *Bachelier Seminar* at the Institut Henri Poincaré, Paris, France, May 12, 2023.
- Invited talk at the Minisymposium *Mean Field Game Models in Finance and Economics, SIAM/FME Conference 2023*, Philadelphia, PA, June 6, 2023.
- Invited talk in the *Stochastics Control & Financial Engineering Conference*, Princeton University, NJ, June 23, 2023.
- Invited Minisymposium talk at *ICIAM TOKYO 2023*. Virtual, August 24, 2023.
- Invited speaker at the Workshop *Recent Advances in Stochastic Control, Machine Learning and Quantitative Finance*, Shanghai Jiao Tong University, April 15-19, 2024.
- Invited speaker at the *Byrne Conference on Stochastic Analysis in Finance and Insurance*, University of Michigan, Ann Arbor, MI, June 3-5, 2024.
- Plenary talk at the *8th Asian Quantitative Finance Conference*, National Taipei University of Technology, Taiwan, August 8-11, 2024.

Jean-Pierre FOUQUE

PUBLICATIONS

1. **Régularité des trajectoires des Amarts et Hyperamarts réels.** C.R. Acad. Sc. Paris **A 290**, 107-110 (1980).
2. **Enveloppe de Snell et théorie générale des processus.** C.R. Acad. Sc. Paris **A 290**, 285-288 (1980).
3. **Régularité à gauche des martingales fortes à plusieurs indices** (with A. Millet). C.R. Acad. Sc. Paris **A 290**, 773-776 (1980).
4. **Passé d'un point d'arrêt et arrêt des processus à deux indices.** C.R. Acad. Sc. Paris **I 293**, 83-85 (1981).
5. **The past of a stopping point and stopping for two-parameter processes.** J. of Multivariate Analysis **13**, 561-577 (1983).
6. **La convergence en loi pour les processus à valeurs dans un espace nucléaire.** Annales de l'I.H.P. **20**, 225-245 (1984).
7. **Hydrodynamical limit for the asymmetric simple exclusion process** (with A. Benassi). Annals of Prob. **15**, 546-560 (1987).
8. **Hydrodynamical limit for the asymmetric zero-range process** (with A. Benassi). Annales de l'I.H.P. **24**, 189-200 (1988).
9. **Hydrodynamical behavior of asymmetric attractive particle systems.** Proceedings of the Summer Seminar on Mathematics of Random Media. AMS Lectures in Applied Mathematics **27** (1989).
10. **Asymmetric attractive particle systems on  $\mathbf{Z}$ : hydrodynamical limit for monotone initial profiles** (with A. Benassi, E. Saada and M.E. Vares). J. Stat. Phys. **63**, 719-735 (1991).
11. **Fluctuation field for the asymmetric simple exclusion process.** Oberwolfach Conference on Random Partial Differential Equations. Intert. Series of Numer. Math. Birkhäuser, Ed. by Hornung, Kotelenez and Papanicolaou (1991).
12. **A diffusion-approximation result for two-parameter processes** (with R. Carmona). Prob. Th. and Rel. Fields **98**, 277-298 (1994).
13. **A limit theorem for linear boundary value problems in random media** (with E. Merzbach). Annals of App. Prob. **4**, 549-569 (1994).

14. **Totally asymmetric attractive particle systems on  $\mathbb{Z}$ : hydrodynamical limit for general initial profiles** (with E. Saada). *Stoch. Proc. and Th. Appl.* **51**, 9-23 (1994).
15. **Diffusion-approximation for the advection-diffusion of a passive scalar by a space-time gaussian velocity field** (with R. Carmona) . *Seminar on Stochastic Analysis, Random Fields and Applications* (Ed. by E. Bolthausen, M. Dozzi and F. Russo), 37-50. Birkhäuser, Basel (1994).
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17. **Spreading of a pulse travelling in random media** (with J.F. Clouet). *Annals of Appl. Prob.* **4**, 1083-1097 (1994).
18. **Spectral analysis of randomly scattered signals using the wavelet transform** (with J.F. Clouet and M. Postel). *Wave Motion* **22**, 145-170 (1995).
19. **Estimation of local power spectral densities for non-stationary signals using wavelet transform** (with J.F. Clouet and M. Postel). *Mathematics and Computers in Simulation*, **38**, 183-188 (1995).
20. **Amplification of incoherent light with wide spectrum** (with J. Garnier). *Proceedings of the Third International Congress on Wave Propagation*, INRIA, Mandelieu, France 1995.
21. **Parabolic and white noise approximation for waves in random media** (with F. Bailly and J.F. Clouet). *SIAM Journal on Applied Mathematics*, Vol. **56**, No 5 (1996).
22. **On waves in random media in the diffusion approximation regime** (with J. Garnier). *Conference on waves in random media*. IMA Minnesota, November 1994. *IMA Volumes in Mathematics and its Applications*, Vol. **96**, Ed. G. Papanicolaou, 31-48 (1997).
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24. **A time reversal method for acoustical pulses propagating in randomly layered media** (with J.F. Clouet). *Wave Motion* **25**, 361-368 (1997).
25. **Pressure fields generated by acoustical pulses propagating in randomly layered media** (with J. Chillan). *SIAM Journal on Applied Mathematics*, **58** , 1532-1546 (1998).
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27. **Asymptotics of a Two-Scaled Stochastic Volatility Model** (with G. Papanicolaou and R. Sircar). Volume dedicated to J.L. Lions. Gauthiers-Villars, 517-526 (May 1998).
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32. **Derivatives in Financial Markets with Stochastic Volatility** (BOOK with G. Papanicolaou and R. Sircar). Cambridge University Press, 2000.
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38. **Stochastic Volatility Corrections for Interest Rates Models** (with P. Cotton, G. Papanicolaou and R. Sircar). Mathematical Finance **14**(2), 173-200 (2004).
39. **Singular Perturbations in Option Pricing** (with G. Papanicolaou, R. Sircar and K. Sølna). SIAM Journal on Applied Mathematics **63**(5), 1648-1665 (2003).
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41. **Maturity Cycles in Implied Volatility** (with G. Papanicolaou, R. Sircar and K. Sølna). *Stochastics & Finance* **8**(4), 451-477 (2004).
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46. **Time reversal for dispersive waves in random media** (with J. Garnier and A. Nachbin). *SIAM Journal on Applied Mathematics* **64**(5), 1810-1838, (2004).
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48. **MCMC Estimation of Multiscale Stochastic Volatility Models** (with G. Molina and C.H. Han). Submitted 2003, revised 2004. *Handbook of Quantitative Finance and Risk Management*. Editors C.F. Lee and A.C. Lee, Springer 2008.
49. **Shock structure due to stochastic forcing and the time reversal of nonlinear waves** (with J. Garnier and A. Nachbin). *Physica D*, Vol. **195**, 324-346 (2004).
50. **Robustness of time reversal for waves in time-dependent random media** (with D. Alfaro Vigo, J. Garnier and A. Nachbin). *Stochastic Processes and Their Applications* **113**(2), 289-313 (2004).
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54. **Time reversal refocusing for point source in randomly layered media** (with J. Garnier, A. Nachbin and K. Sølna). *Wave Motion* **42**(3), 238-260 (2005).

55. **Imaging of a dissipative layer in a random medium using a time-reversal method** (with J. Garnier, A. Nachbin and K. Sølna). Proceedings of the conference "Monte Carlo and Quasi-Monte Carlo Methods 2004", (Nice, 2004), H. Niederreiter and D. Talay, eds., Springer, Berlin, 2006, pp. 127–145.
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57. **Evaluation of Compound Options Using Perturbation Approximation** (with C.H. Han). Journal of Computational Finance **9**(1), Fall 2005.
58. **Variance Reduction for Monte Carlo Methods to Evaluate Option Prices under Multi-factor Stochastic Volatility Models** (with C.H. Han). Quantitative Finance **4**(5), 597-606 (October 2004).
59. **Variance Reduction for MC/QMC Methods to Evaluate Option Prices** (with C.H. Han and Y. Lai). Recent Advances in Financial Engineering (Proceedings of the 2008 Daiwa International Workshop on Financial Engineering).
60. **Detection of a Reflective Layer in a Random Medium Using Time Reversal** (with O. Poliannikov). Proceedings of 2005 IEEE International Conference on Acoustics, Speech, and Signal Processing. March 19-23 2005, Philadelphia, PA.
61. **Time Reversal Super Resolution in Randomly Layered Media** (with J. Garnier and K. Sølna). Wave Motion **43**, 646-666 (2006).
62. **A Martingale Control Variate Method for Option Pricing with Stochastic Volatility** (with C.H. Han). ESAIM Probability & Statistics **11**, 40-54, 2007.
63. **Time reversal detection in one-dimensional random media** (with O. Poliannikov). Inverse Problems **22** 903-922 (2006) .
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66. **Bond Markets with Stochastic Volatility** (with R. DeSantiago and K. Sølna). Advances in Econometrics **Vol. 22**, 215-242, 2008.
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68. **Multiname and Multiscale Default Modeling** (with R. Sircar and K. Sølna). SIAM Journal Multiscale Modeling and Simulation **7**(4), 1956-1978, 2009.
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71. **Short maturity asymptotics for a fast mean reverting Heston stochastic volatility model** (with J. Feng and M. Forde). SIAM Journal on Financial Mathematics **1**, 126-141, 2010.
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78. **Spectral decomposition of option prices in fast mean-reverting stochastic volatility models** (with S. Jaimungal and M. Lorig). SIAM Journal on Financial Mathematics **2**, 665-691, 2011.
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92. **Perturbation Analysis for Investment Portfolios Under Partial Information with Expert Opinions** (with A. Papanicolaou and R. Sircar). *SIAM Journal on Control and Optimization* **55**(3), 1534-1566, 2017.
93. **A Unified Approach to Systemic Risk Measures via Acceptance Sets** (with F. Biagini, M. Frittelli, and T. Meyer-Brandis). *Mathematical Finance*, Version of Record online: 7 FEB 2018 — DOI: 10.1111/mafi.12170. Vol **29**(1), p 329-367, 2019.
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111. **Linear-Quadratic Stochastic Differential Games on Random Directed Networks** (with Y. Feng and T. Ichiba). <http://arxiv.org/abs/2011.04279>  
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113. **Sub- and Super-solution Approach to Accuracy Analysis of Portfolio Optimization Asymptotics in Multiscale Stochastic Factor Markets** (with R. Hu and R. Sircar). SIAM Journal on Financial Mathematics Vol. **13**(1), pp. 109-128, 2022. <http://arxiv.org/abs/2106.11510>
114. **Reinforcement Learning for Mean Field Games, with Applications to Economics** (with A. Angiuli and M. Laurière). Machine Learning and Data Sciences for Financial Markets: A guide to contemporary practices, editors: A. Capponi and C.-A. Lehalle, Cambridge University Press, to appear 2023. <http://arxiv.org/abs/2106.13755>
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117. **Deep Learning for Systemic Risk Measures** (with Y. Feng and M. Min). 3rd ACM International Conference on AI in Finance, Nov. 2-4, 2022. <https://arxiv.org/abs/2207.00739>
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<https://arxiv.org/abs/2302.10183>
120. **Collective Arbitrage and the Value of Cooperation** (with F. Biagini, A. Doldi, M. Frittelli, and T. Meyer-Brandis), 2023.  
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<http://arxiv.org/abs/2312.06659>
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<http://arxiv.org/abs/2405.17017>
124. **Catalan Numbers, Riccati Equations and Convergence** (with Y. Feng and T. Ichba), 2024.  
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