

# Olivier WINTENBERGER

Professor Dr. in Applied Mathematics and Actuary

## Personal Informations

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**Work address:**

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**Research interests:** Heavy tailed processes, Weak dependence, Statistics for Markov chains, Online learning, Exponential inequalities.

## Employment

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- 2014-2016    **Guest professor**, Mathematical institute, Copenhagen University, Denmark
- 2013-        **Professor**, co-organizer of the ISUP actuarial program  
LSTA, Université Pierre et Marie Curie, Paris, France
- 2011-2014   **Affiliate researcher**, Laboratoire de Finance et Assurance,  
Centre de Recherche en Economie et STatistique, Malakoff, France
- 2008-2013   **Assistant Professor**, co-organizer of the actuarial program  
CEREMADE, Université Paris Dauphine, Paris, France
- 2004-2007   **Teaching Assistant:** École polytechnique, Palaiseau, France

## Education

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- 2012        **Habilitation à diriger des recherches**, CEREMADE, Dauphine, France
- 2007-2008   **Postdoctoral position** (with T. Mikosch, 1<sup>st</sup> semester)  
Laboratory of Actuarial Mathematics, Copenhagen, Denmark
- 2007        **Phd in Applied Mathematics** (supervisors: J.-M. Bardet and P. Doukhan)  
Laboratory: SAMOS, Université Panthéon-Sorbonne, Paris, France
- 2004        **Master degree** in Applied Mathematics, Université Diderot, Paris, France  
**Diploma of Statistician-Economist** of the ENSAE, Paris, France

## Research management

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- 2012-2014 **Scientific collaboration program**, French embassy of Copenhagen,  
2014-2017 **Principal Investigator of AMERISKA**, an ANR network on Statistics for heavy tailed processes, applications in food and climate risks management,  
2012-2016 **Associate Editor**, Dependence Modeling,  
2014- **Associate Editor**, Extremes,  
2016- **Associate Editor**, Bernoulli,  
2014-2015 **Conferences organizer**: - Université d'été des Actuaires, UPMC.  
- "Dependence, Limit Theorems and Applications", IHP.  
- 60th birthday of T. Mikosch, KU.  
**Masterclass organizer**, Mathematical Foundations of Heavy Tailed Analysis.  
2014- **Member of board**, Banque Finance Assurance of the SFDS society.  
2014- **Workshop co-organizer**, EVT at Jussieu, UPMC.  
2017 **Conference co-organizer**, Heavy Tails and Long Range Dependence, Telecom, Paris.

## PhD-Post-Doc students

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- 2009-2012 **Cai Sixiang**. Bootstrapping extreme statistics for financial applications.  
Supervised with J. L. Prigent and Paul Doukhan. Finance analyst.  
2014-2017 **Johannes Heiny**, Extreme Eigenvalues of Sample Covariance and Correlation Matrices.  
2014-2017 **Charles Tillier**, Heavy tailed analysis to assess food risks.  
Supervised with P. Bertail.  
2014- **Vincent Margot**, Online learning for time series, application in finance.  
Supervised with J.P. Baudry and F. Guilloux.  
2017- **Nicolas Meyer**, High dimensional learning for extremes.  
2015-2016 (Post-Doc) **Pierre Gaillard**, Adaptive and Sparse Online Learning.  
2012-2013 (Research assistant) **Ferdinand Torron**, ENS Cachan.

## Awards and invitations

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- 2015 **Visiting Researcher position** (August), Torun, Poland  
2013 **OFPR Lecture**, ENSAE, France  
2013 **PhD Course** on Extremes in Space and Time, Copenhagen, Denmark  
2012 **PhD Course**, Thematic cycle, UCP, France  
2011 **Elsevier Travel** award, New Frontier in Applied Probabilities.  
2009 **Graduate Student Travel** award, Graybill VIII.  
2007 **Laha Travel** award, IMS.

## Publications

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- [1] C. Tillier and O. Wintenberger (2017) *Regular variation of a random length sequence of random variables and application to risk assessment*, Extremes, Online First.  
[2] O. Wintenberger, (2016) *Exponential inequalities for unbounded functions of geometrically ergodic Markov chains. Applications to quantitative error bounds for regenerative Metropolis algorithms*, Statistics, Special Issue in honor of Paul Doukhan, Online first.

- [3] O. Wintenberger, (2016) *Optimal learning with Bernstein Online Aggregation*, Machine Learning, Online first.
- [4] C. Francq, O. Wintenberger and J.-M. Zakoïan, (2016) *Goodness-of-fit tests for extended Log-GARCH models and specification tests against the EGARCH*, TEST, Online first.
- [5] T. Mikosch and O. Wintenberger (2016) *A large deviations approach to limit theory for heavy-tailed time series*, Probab. Th. Rel. Fields 166, 233-269.
- [6] O. Wintenberger (2015) *Weak transport inequalities and applications to exponential and oracle inequalities*, EJP, 20, 114, 1–27.
- [7] T. Mikosch and O. Wintenberger (2014) *The cluster index of regularly varying sequences with applications to limit theory for functions of multivariate Markov chains*, Probab. Th. Rel. Fields 159, 157-196.
- [8] J. Trashorras and O. Wintenberger (2013) *Large deviations for bootstrapped empirical measures*, Bernoulli, 20(4), 2014, 1845–1878.
- [9] P. Alquier, X. Li and O. Wintenberger (2013) *Prediction of time series by statistical learning: general losses and fast rates*, Dependence Modeling, 1, 65-93.
- [10] C. Francq, O. Wintenberger and J.-M. Zakoïan (2013) *GARCH models without positivity constraints: Exponential or Log GARCH?*, Journal of Econometrics 177, 34-46.
- [11] O. Wintenberger (2013) *Continuous Invertibility and Stable QML Estimation of the EGARCH(1,1) Model*, Scandinavian Journal of Statistics 40, 846-867.
- [12] T. Mikosch and O. Wintenberger (2013) *Precise large deviations for dependent regularly varying sequences*, Probab. Th. Rel. Fields 156, 851-887.
- [13] J.-M. Bardet, W. Kengne, and O. Wintenberger (2012) *Detecting multiple change-points in general causal time series using penalized quasi-likelihood*, Electron. J. Statist. 6, 435-477.
- [14] P. Alquier, O. Wintenberger (2012) *Model selection and randomization for weakly dependent time series forecasting*, Bernoulli 18 (3), 883-913.
- [15] K. Bartkiewicz, A. Jakubowski, T. Mikosch, O. Wintenberger (2011) *Stable limits for sums of dependent infinite variance random variables* Probab. Th. Rel. Fields 150, 337-372.
- [16] O. Wintenberger (2010) *Deviation inequalities for sums of weakly dependent time series*, Elect. Comm. in Probab. 15, 489-503.
- [17] I. Gannaz, O. Wintenberger (2010) *Adaptive density estimation under weak dependence*, ESAIM Probab. Statist. 14, 151-172. <br>
- [18] J.-M. Bardet, O. Wintenberger (2009) *Asymptotic normality of the Quasi Maximum Likelihood Estimator for multidimensional causal processes*, Ann. Statist. 37, 2730-2759.
- [19] P. Doukhan, O. Wintenberger (2008) *Weakly dependent chains with infinite memory*, Stoch. Proc. Appl. 118, 11, 1997-2013.
- [20] P. Doukhan, O. Wintenberger (2007) *An invariance principle for weakly dependent stationary general models*, en collaboration avec P. Doukhan, Probab. Math. Statist. 27, 1, 45-73.

## Book chapters and conference proceedings

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- [21] Niklas Thiemann, Christian Igel, Olivier Wintenberger, and Yevgeny Seldin (2017) *A strongly quasiconvex PAC-Bayesian bound*. In Proceedings of Machine Learning Research, 76 (ALT).
- [22] P. Gaillard and O. Wintenberger, (2017) *Sparse Accelerated Exponential Weights*, Accepted for AISTAT 2017, JMLR.

- [23] N. Ragache, O. Wintenberger (2006) *Convergence rates for density estimators of weakly dependent time series*, Dependence in Probability and Statistics, (Eds P. Bertail, P. Doukhan and P. Soulier), Lecture Notes in Statist. 187, 349-372.

## Preprints

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- [23] R. Kulik, P. Soulier and O. Wintenberger, *The tail empirical process of regularly varying functions of geometrically ergodic Markov chains*.
- [24] R. S. Pedersen and O. Wintenberger *On the tail behavior of a class of multivariate conditionally heteroskedastic processes*.
- [25] T. Mikosch, M. Rezapour and O. Wintenberger *Heavy tails for an alternative stochastic perpetuity model*.
- [26] F. Blasques, P. Gorgi, S. J. Koopman and O. Wintenberger *Feasible Invertibility Conditions for Maximum Likelihood Estimation for Observation-Driven Models*.