Marie KRATZ

Professeur
Département: Systèmes d'Information, Data Analytics et Opérations
ESSEC Business School
3 avenue Bernard Hirsch
95021 Cergy-Pontoise
France

Email: kratz@essec.edu
Numéro de téléphone: +33 (0)1 34 43 36 43
Pays d'origine: France

INTERETS DE RECHERCHE

Théorie des probabilités et statistiques, Modélisation du risque et Actuariat, Probabilité Appliquée,

FORMATION

2013	Master en Sciences Actuarielles: SAFIR-SAF, Université Claude Bernard Lyon 1, France
2005	HDR, Université Paris 1 Panthéon-Sorbonne, France *On extreme behaviors of stochastic processes*
1993	Doctorat en Mathématiques Appliquées, Université Pierre et Marie Curie (UPMC), France *Statistics of tails of distributions and Poisson approximation*

EXPERIENCE PROFESSIONNELLE

Positions académiques principales

2013 - Présent	Actuaire agrégée, Institut des Actuaires, France
2011 - Présent	Professeur, ESSEC Business School, France
2006 - 2011	Professeur associé, ESSEC Business School, France

Autres affiliations académiques

2013 - Présent	Directrice du CREAR - Center of Research in Econo-finance and Actuarial Science on Risk, ESSEC Business School, France
2012 - 2027	Directrice de la filière actuarial ESSEC-ISUP, ESSEC Business School, France
2012 - 2016	Coordinatrice scientifique du projet européen 'RARE' - Risk Analysis, Ruin and Extremes - FP7-PEOPLE-2012-IRSES - Marie Curie Actions, qui vise à renforcer les partenariats de recherche à travers des échanges de professeurs et des activités de networking entre organisations de recherche européennes et organisations de recherche d'autres pays (12 partenaires), ESSEC Business School, France
2011 - 2015	Directeur du programme de recherche ESSEC - SWISS LIFE "Conséquences de la population le vieillissement sur la perte d'assurance. Impacts sur la prévention automobile", ESSEC Business School, France
2011 - 2014	Responsable d'une équipe de recherche, ESSEC Business School, France

2008 - 2012	Co-responsable de la filière actuariat ESSEC-ISUP, ESSEC Business School, France
2017 - 2020	Professeure visitante à temps partiel, Université de Lund, Suède
2013 - Présent	Membre affilié de RiskLab, ETH Zurich, Suisse
2012 - 2012	Stage à FINMA, Swiss Financial Market Supervisory Authority, Swiss Financial Market Supervisory Authority FINMA, Suisse
2006 - Présent	Membre de GDR 3477 - Géométrie Stochastique - voir http://gdr-geostoch.math.cnrs.fr, CNRS - Centre national de la recherche scientifique,
2004 - 2009	Membre de MAP5 (Mathématiques Appliquées), UMR8145, Université Paris Descartes (Paris V), France
1999 - 2000	Délégation C.N.R.S. (SAMOS-MATISSE, UMR 8595), CNRS - Centre national de la recherche scientifique, France
1994 - 2006	Maître de Conférences, Université Paris Descartes (Paris V), France

BOURSES, PRIX ET DISTINCTIONS

Prix et Distinctions

2013	Actuaire Agrégée IA, Institut des Actuaires, France

Bourses

2018	International chair labex MME-DII & ESSEC CREAR on, ESSEC CREAR, France
2017	Monash University, School of Mathematical Sciences & Center for Modelling of Stochastic Systems (CMSS), Monash University, Australie
2017	ETH Risk Center, ETH Zurich, Suisse
2016	Visiting scholar and Member of the advisory board of QRFE, Durham University, Royaume-Uni
2016	Institute for Mathematical Research (FIM), ETH Zurich, Suisse
2014	Tata Institute for Fundamental Research (TIFR, India), by a grant from the Indo-French Center for Applied Mathematics (IFCAM) for a research project between M. Kratz & S. Vadlamani, Tata Institute for Fundamental Research
2014	Labex MME-DII, Labex MME-DII, France
2012	FP7-PEOPLE-2012-IRSES - Marie Curie Actions, Union Européenne, Belgique
2012	European FP7-RARE project
2010	Ceressec Research projects grants

PUBLICATIONS

Articles

AMABA, T. et KRATZ, M. (2025). Regularization effects of time integration on Gaussian process functionals. *Stochastic Processes and their Applications*, 190, pp. 104761.

HAMBUCKERS, J., KRATZ, M. et USSEGLIO-CARLEVE, A. (2025). Efficient Estimation in Extreme Value Regression Models of Hedge Funds Tail risks. *Journal of Financial Econometrics*, 23(5), pp. nbaf018.

BRÄUTIGAM, M., DACOROGNA, M. et KRATZ, M. (2023). Pro-cyclicality beyond business cycle. *Mathematical Finance*, 33(2), pp. 308-341.

KRATZ, M. et PROKOPENKO, E. (2023). Multi-normex distributions for the sum of random vectors. Rates of convergence. *Extremes*, 26, pp. 509-544.

BRÄUTIGAM, M. et KRATZ, M. (2023). How do empirical estimators of popular risk measures impact pro-cyclicality? *Annals of Actuarial Science*, 17(3), pp. 547-579.

DACOROGNA, M. et KRATZ, M. (2023). Managing cyber risk, a science in the making. *Scandinavian Actuarial Journal*, 2023(10), pp. 1000-1021.

DACOROGNA, M., DEBBABI, N. et KRATZ, M. (2023). Building up cyber resilience by better grasping cyber risk via a new algorithm for modelling heavy-tailed data. *European Journal of Operational Research*, 311(2), pp. 708-729.

BANERJEE, A., CHEVILLON, G. et KRATZ, M. (2020). Probabilistic Forecasting of Bubbles and Flash Crashes. *Econometrics Journal*, 23(2).

DAS, S. et KRATZ, M. (2020). Risk Concentration Under Second Order Regular Variation. *Extremes*, 23, pp. 381-410.

CADENA, M., KRATZ, M. et OMEY, E. (2019). Characterization of a general class of tail probability distributions. *Statistics & Probability Letters*, 154, pp. 108553.

CADENA, M., KRATZ, M. et OMEY, E. (2019). On functions bounded by Karamata functions. *Journal of Mathematical Sciences*, 237(5), pp. 621-630.

KRATZ, M. (2019). L'approche statistique au service de l'humain : mieux comprendre les risques cyber pour une société plus résiliente. *Revue de la Gendarmerie Nationale*, (266), pp. 61-62.

KRATZ, M., LOK, Y.H. et MCNEIL, A.J. (2018). Multinomial VaR Backtests: A Simple Implicit Approach to Backtesting Expected Shortfall. *Journal of Banking & Finance*, 88(C), pp. 393-407.

DACOROGNA, M., ELBAHTOURI, L. et KRATZ, M. (2018). Validation of Aggregated Risks Models. *Annals of Actuarial Science*, 12(2), pp. 1-22.

KRATZ, M. et VADLAMANI, S. (2017). Central Limit Theorem for Lipschitz–Killing Curvatures of Excursion Sets of Gaussian Random Fields. *Journal of Theoretical Probability*, 31(3), pp. 1729-1758.

KRATZ, M. (2017). Discussion on the Paper: Elicitability and Backtesting: Perspectives for Banking Regulation. *Annals of Applied Statistics*, 11(4), pp. 1894-1900.

CADENA, M., KRATZ, M. et OMEY, E. (2017). On the Order of Functions at Infinity. *Journal of Mathematical Analysis and Applications*, 452(1), pp. 109-125.

DACOROGNA, M., ELBAHTOURI, L. et KRATZ, M. (2016). Explicit Diversification Benefit for Dependent Risks. *SCOR*.

CADENA, M. et KRATZ, M. (2016). New Results for Tails of Probability Distributions According to Their Asymptotic Decay. *Statistics & Probability Letters*, 109, pp. 178-183.

KRATZ, M. et NAGEL, W. (2016). On the Capacity Functional of Excursion Sets of Gaussian Random Fields on R². *Advances in Applied Probability*, 48(3), pp. 712-725.

EMMER, S., KRATZ, M. et TASCHE, D. (2015). What Is the Best Risk Measure in Practice? A Comparison of Standard Measures. *Journal of Risk*, 18(2), pp. 31-60.

GUILLOU, A., KRATZ, M. et LE STRAT, Y. (2014). An Extreme Value Theory Approach for the Early Detection of Time Clusters. A Simulation-Based Assessment and an Illustration to the Surveillance of Salmonella. *Statistics in Medicine*, 33(28), pp. 5015-5027.

KRATZ, M. (2014). Normex, a New Method for Evaluating the Distribution of Aggregated Heavy Tailed Risks. *Extremes*, 17(4), pp. 661-691.

BUSSE, M., DACAOROGNA, M. et KRATZ, M. (2014). The Impact of Systemic Risk on the Diversification Benefits of a Risk Portfolio. *Risks*, 2, pp. 260-276.

DAS, S. et KRATZ, M. (2012). Alarm System for Insurance Companies: A Strategy for Capital Allocation. *Insurance: Mathematics and Economics*, 51(1), pp. 53-65.

ESTRADE, A., IRIBARREN, I. et KRATZ, M. (2012). Chord-Length Distribution Functions and Rice Formulae. Application to Random Media. *Extremes*, 15(3), pp. 333-352.

CAPA SANTOS, H., KRATZ, M. et MOSQUERA MUNOZ, F. (2012). Modeling Macroeconomic Effects and Expert Judgements in Operational Risk: A Bayesian Approach. *Journal of Operational Risk*, 7(4), pp. 3-23.

DEMICHEL, Y., ESTRADE, A., KRATZ, M. et SAMARODNITSKY, S. (2011). How Fast Can the Chord-Length Distribution Decay? *Advances in Applied Probability*, 43(2), pp. 504-523.

KRATZ, M. et LEON, J.R. (2010). Level Curves Crossings and Applications for Gaussian Models. *Extremes*, 13(3), pp. 315-351.

KRATZ, M. (2006). Level Crossings and Other Level Functionals of Stationary Gaussian Processes. *Probability Surveys*, pp. 230-288.

KRATZ, M. et LEON, J. (2006). On the second moment of the number of crossings by a stationary Gaussian process. *Annals of Probability*, 34(4), pp. 1601-1607.

KRATZ, M. et PICCO, P. (2004). On a representation of Gibbs measure for R.E.M. *Annals of Applied Probability*, 14(2), pp. 651-677.

KRATZ, M. et LEON, J. (2001). Central Limit Theorems for Level Functionals of Stationary Gaussian Processes and Fields. *Journal of Theoretical Probability*, 14(3), pp. 639-672.

KRATZ, M. et LEON, J. (2000). Central limit theorems for the number of maxima and some estimator of the second spectral moment of a stationary Gaussian process. Applications in hydroscience. *Extremes*, 3(1), pp. 57-86.

KRATZ, M. et LEON, J. (1997). Hermite polynomial expansion for non-smooth functionals of stationary Gaussian processes: crossings and extremes. *Stochastic Processes and their Applications*, 66(2), pp. 237-252.

KRATZ, M. et ROOTZÉN, H. (1997). On the rate of convergence for extremes of mean square differentiable stationary normal processes. *Journal of Applied Probability*, 34(4), pp. 908-923.

KRATZ, M., RESNICK, S. et FEIGIN, P. (1996). Parameter estimation for moving averages with positive innovations. *Annals of Applied Probability*, 6, pp. 1157-1190.

KRATZ, M. et RESNICK, S. (1996). The Q-Q estimator and heavy tails. *Stochastic Models*, 12(4), pp. 699-724.

KRATZ, M. et HÜSLER, J. (1995). Rate of Poisson approximation of the number of exceedances of nonstationary normal sequences. *Stochastic Processes and their Applications*, 55, pp. 301-313.

KRATZ, M. (1993). Approximation Poissonnienne relative du processus empirique., 316, série I, pp. 1221-1224.

Chapitres d'ouvrage

KRATZ, M. et DACOROGNA, M. (2020). Moving from Uncertainty to Risk: the Case of Cyber Risk. Dans: Hugo Loiseau, Daniel Ventre, Hartmut Aden eds. *Cybersecurity in Humanities and Social Sciences. A Research Methods Approach*. 1st ed. London & Hoboken: ISTE - WILEY, pp. 123-152.

KRATZ, M. (2019). Mathematics of Risk - Introduction to Extreme Value Theory. Applications to Risk Analysis & Management. Dans: *2017 MATRIX Annals - Mathematics of Risk*. 1st ed. Springer, pp. 591-637.

KRATZ, M. (2016). On the Estimation of the Distribution of Aggregated Heavy-Tailed Risks: Application to Risk Measures. Dans: *Extreme Events in Finance: Handbook of Extreme Value Theory and Its Applications*. 1st ed. Wiley, pp. 239-282.

Editeur invité d'un numéro spécial

DACOROGNA, M. et KRATZ, M. (2022). Special Issue "Cyber Risk and Security". *Risks*, 10.

CONSTANTINESCU, C., HASHORVA, E. et KRATZ, M. (2018). Annals of Actuarial Science. *Annals of Actuarial Science*, 12.

Actes d'une conférence

CADENA, M., KRATZ, M. et OMEY, E. (2017). On Functions Bounded by Karamata Functions. Dans: *Proceedings of XXXIV International Seminar on Stability Problems for Stochastic Models*. Journal of Mathematical Analysis and Applications.

KRATZ, M., LOK, Y. et NCNEIL, A. (2016). A Multinomial Test to Discriminate Between Models. Dans: *2016 ASTIN Colloquium*. Lisbon School of Economics and Management.

DEBBABI, N., KRATZ, M., MBOUP, M. et EL ASMI, S. (2015). Distribution hybride pour la modélisation de données à deux queues lourdes: Application sur les données neuronales. Dans: *25ème Édition du Colloque GRETSI*. École Normale Supérieure de Lyon.

DEBBABI, N., KRATZ, M., MBOUP, M. et EL ASMI, S. (2012). Combining Algebraic Approach with Extreme Value Theory for Spike Detection. Dans: *Proceedings of EUSIPCO 2012*.

KRATZ, M., ATENCIA, M. et JOYA, G. (2007). Fixed Points of the Abe Formulation of Stochastic Hopfield Networks. Dans: *ICANN - LNCS 4668*. Springer.

KRATZ, M. et HÜSLER, J. (1994). On the convergence of the number of exceedances of nonstationary normal sequences. Dans: *Extreme Value Theory and Applications*. Gaithersburg: Journal of Research of the National Institute of Standards and Technology, pp. 539-542.

Conférences

KRATZ, M., AKA, S. et NAVEAU, P. (2025). Discrete Multivariate Generalized Pareto Distribution for Drought Risk Assessment. Dans: 2025 Munich Risk and Insurance Days. Munich.

KRATZ, M. (2025). Multivariate extremes. Dans: 2025 Mathematical and Computational Foundations of Climate Modeling. Chennai.

KRATZ, M., HAMBUCKERS, J. et USSEGLIO-CARLEVE, A. (2025). Efficient estimation for EV regression models oftail risks. Dans: 56es Journées de Statistiques de la SFdS (2025 SFdS). Marseille.

KRATZ, M., SINGHA, S., VADLAMANI, S. et AKA, S. (2025). OT multivariate quantiles with applications in climate. Dans: 2025 UNIS Actuarial Conference. Salerno.

KRATZ, M., DACOROGNA, M. et DEBBABI, N. (2025). Cyber risk analysis & management. Dans: 2026 UNIS Actuarial Conference. Salerno.

SINGHA, S., KRATZ, M. et VADLAMANI, S. (2024). Developing OT (and related) graphical tools. Application in Risk Analysis & Management. Dans: 55e Journées de Statistique de la Société Française de Statistique (SFdS) 2024. Paris.

KRATZ, M. (2024). New methods for evaluating the distribution of heavy tailed data, based on (asymptotic) mean and extreme behaviours. Dans: 8th Ritsumeikan-Monash Symposium on Probability and Related Fields 2024. Kusatsu.

SINGHA, S., KRATZ, M. et VADLAMANI, S. (2024). Comparing Multivariate Distributions: A Novel Approach Using Optimal Transport-based Plots. Dans: 2024 Munich Risk and Insurance Days. Munich.

KRATZ, M. et BRAUTIGAM, M. (2023). Joint Asymptotics for the Sample Quantile and Measures of Dispersion for Functionals of Mixing Processes. Dans: 43rd Conference on Stochastic Processes and their Applications 2023. Lisbon.

KRATZ, M. et DACOROGNA, M. (2023). Cyber Risk Analysis: Overview and Focus on Extremes. Dans: 54èmes Journées de Statistique de la SFdS (JdS2023). Brussels.

KRATZ, M. et PROKOPENKO, E. (2023). Multi-Normex for Evaluating the Distribution of Aggregated Heavy Tailed Risks. Dans: 13th Conference on Extreme Value Analysis, Probabilistic and Statistical Models and their Applications 2023. Milan.

HAMBUCKERS, J., KRATZ, M. et USSEGLIO-CARLEVE, A. (2023). Efficient estimation for EV regression models of tail risks. Dans: 2023 Conference of the ERCIM WG on Computational and Methodological Statistics (CMStatistics 2023). Berlin.

KRATZ, M. et PROKOPENKO, E. (2022). Multi-Normex Approach based on Ordered Statistics for evaluating the Sum of Heavy-tailed Random Vectors. Dans: 14th International Conference on Ordered Statistical Data. Vietri.

KRATZ, M. et PROKOPENKO, E. (2022). Multi-Normex for evaluating the Distribution of Aggregated Heavy-tailed Risks. Dans: 53èmes Journées de Statistique de la Société Française de Statistique (SFdS). Lyon.

DACOROGNA, M. et KRATZ, M. (2022). Consequences for risk management of the analysis of the GN database on cyber attacks. Dans: ASTIN Cyber Workshop – Capacity Crunch in the Cyber Market. London.

KRATZ, M. et CHAAR, A. (2021). Combining Machine Learning & Extreme Value Theory for modelling multimodal non homogeneous data. Dans: 63rd World Statistics Congress 2021, Invited Session: Extreme Value Statistics. Virtual.

KRATZ, M. et PROKOPENKO, P. (2021). Multi-Normex Distributions. Dans: 14th International Conference of the ERCIM WG on Computational and Methodological Statistics (CMStatistics 2021). London.

BRÄUTIGAM, M., KRATZ, M. et DACOROGNA, M. (2021). Pro--Cyclicality of traditional risk measurement. Dans: 8th European Congress of Mathematics.

KRATZ, M. (2021). Assurabilité des Risques Cyber. Dans: 1er Colloque International de l'Actuariat Francophone. Virtuel.

KRATZ, M. (2020). An algorithmic method for fitting multimodes heavy tailed distribution. Dans: 13th International Conference of the ERCIM WG on Computational and Methodological Statistics (CMStatistics 2020). London (virtual).

KRATZ, M. (2020). Pro-Cyclicality Beyond Business Cycles: The Case of Risk Measures. Dans: Singapore Actuarial Society (SAS)super week, SAS-ERM conference. Singapore (Virtual).

KRATZ, M. (2020). Pro-Cyclicality Beyond Business Cycles: The Case of Risk Measures. Dans: Actuarial Colloquium Paris 2020. Paris (virtual).

KRATZ, M. (2020). Round table on Key Issues and Challenges for Actuarial Science. Bringing together academics and practitioners. Dans: Actuarial Colloquium Paris 2020. Paris (virtual).

KRATZ, M. et AMABA, T. (2019). On the Regularity of Functionals for Stationary Gaussian Processes. Dans: 41st conference on Stochastic Processes and their Applications (SPA) 2019.

KRATZ, M., DEBBABI, N. et DACOROGNA, M. (2019). Data Analytics on Cyber Crimes Complaints Registered at C3N of Gendarmerie Nationale. Dans: 2019 Joint AFIR-ERM / ASTIN Symposium.

KRATZ, M. (2019). The impact of traditional risk measurement on the pro-cyclicality. Dans: Paris Seine Initiative Scientific Day. Neuville.

KRATZ, M. (2019). How does market price extremes of underlying shares in the options market? Dans: 14th International Conference on Computational and Financial Econometrics (CFE 2020). London.

DEBBABI, N., KRATZ, M. et MBOUP, M. (2018). A Self-Calibrating Method for Heavy Tailed Data Modelling. Application in Neuroscience and Finance. Dans: 6th European Seminar on Computing (ESCO 2018).

KRATZ, M. (2018). Exploration statistique de données d'attaques cyber et approche méthodologique. Dans: Colloque international 'Méthodes de recherche en sciences humaines et sociales sur la cybersécurité.

KRATZ, M. (2018). Level Crossings and Applications. Dans: Workshop on 'Can Stochastic Geometry handle Dynamics of Risk Management?'.

KRATZ, M. (2018). Level Functionals for Gaussian Fields and Applications to Oceanography. Dans: 2018 Random Waves in Oxford.

BRÄUTIGAM, M. et KRATZ, M. (2018). On the Dependence between Quantile and Dispersion Estimators. Application to Quantitative Financial Risk Management. Dans: 7th Monash-Ritsumeikan Symposium on Probability and Related Fields 2018.

KRATZ, M. (2018). On the Regularity of Time Occupation Functionals for Gaussian Processes. Dans: Conference on ’Rough Paths Theory and Malliavin Calculus’, Rencontres Mathématiques de Rouen.

BANERJEE, A., CHEVILLON, G. et KRATZ, M. (2018). Probabilistic Forecasting of Bubbles and Flash Crashes. Dans: 2018 Asian Meeting of the Econometric Society.

DEBBABI, N., KRATZ, M. et MBOUP, M. (2017). [Invited] A Self-Calibrating Method for Heavy Tailed Data Modeling. Applications in Finance and Insurance. Dans: CFA France Research Workshop.

DEBBABI, N., KRATZ, M. et MBOUP, M. (2017). [Keynote] A Self-Calibrating Method for Heavy Tailed Data Modeling. Applications in Finance and Insurance. Dans: 2017 IRFRC Annual Conference.

DEBBABI, N., KRATZ, M. et MBOUP, M. (2017). A Self-Calibrating Method for Heavy Tailed Data Modeling. Applications in Finance and Insurance. Dans: CMAstat 2017.

DEBBABI, N., KRATZ, M. et MBOUP, M. (2017). A self-calibrating method for heavy-tailed modeling. Dans: 2017 ERCIM Working Group on Computational and Methodological Statistics (CMStatistics), Birkbeck University of London and King's College London.

GUILLOU, A., KRATZ, M. et LE STRAT, Y. (2017). An EVT Approach for the Early Detection of Time Clusters. Application in Health Surveillance. Dans: Probability: from East to West (PEW 2017).

KRATZ, M., LOK, Y. et MCNEIL, A. (2017). An Implicit Backtest for Expected Shortfall via a Simple Multinomial Approach. Dans: 2017 IASSL 3rd International Conference - Statistics for Good Governance.

KRATZ, M. (2017). EVT and its Application to finance and insurance. Dans: ETH Risk Center March 2017 Workshop.

KRATZ, M. (2017). Limit Theorems for Functionals of Excursion Sets of Gaussian Random Fields. Dans: 39th Conference on Stochastic Processes and their Applications.

KRATZ, M. (2017). Modeling and Backtesting Heavy Tailed Data. Dans: Durham Business School Workshop.

KRATZ, M. (2017). On Risk Aggregation. Dans: MATRIX workshop: "Mathematics of Risk".

KRATZ, M. (2017). Overview of Copulas for Actuaries in Management. Dans: SAS Forum Singapore 2017.

BRAÜTIGAM, M., DACOROGNA, M. et KRATZ, M. (2017). Procyclicality of Empirical Measurements of Risk in Financial Markets. Dans: 2017 Risk Measurement and Regulatory Issues in Business.

BRAÜTIGAM, M., DACOROGNA, M. et KRATZ, M. (2017). Procyclicality of Empirical Measurements of Risk in Financial Markets. Dans: 10th International Conference on Extreme Value Analysis.

KRATZ, M. (2016). An Implicit Backtest for ES via a Simple Multinomial Approach. Dans: 5th Iberian Congress of Actuaries.

KRATZ, M. et VADLAMANI, S. (2016). CLT for Lipschitz-Killing Curvatures. Dans: 6th Ritsumeikan-Monash Symposium on Probability and Relative Fields.

KRATZ, M. et VADLAMANI, S. (2016). CLT for Lipschitz-Killing Curvatures of Excursion Sets of Gaussian Fields. Dans: Monash Probability Conference in Honor of Robert Liptser’s 80th Birthday.

KRATZ, M. (2016). On New IFRS Rules: When Actuaires Meet Accountants. Dans: International Round Table.

KRATZ, M. et DAS, S. (2016). On Risk Concentration. Dans: 3rd ISNPS (International Society for Non-Parametric Statistics) Conference.

KRATZ, M. et CHOTARD, R. (2016). Risk Measure Estimates in Quiet and Turbulent Times: an Empirical Study. Dans: 10th International Conference on Computational and Financial Econometrics (CFE 2016).

KRATZ, M. (2016). Risk Models Validation [Keynote speaker]. Dans: 3rd ERM Conference-Singapore Actuarial Society (SAS).

KRATZ, M. (2016). Standard Risk Measures: A Statistical Debate. Dans: 2015 IMS-China International Conference on Statistics and Probability.

KRATZ, M. (2016). Validation of Risk Models. Dans: IFoA Asia conference.

KRATZ, M. (2015). Key Issues and Challenges that Researchers of Risk And Practitioners from Industries, Perceive as Significant over the Next Few Years. Dans: RTLC Research workshop.

KRATZ, M. et VADLAMANI, S. (2015). On Functionals of Excursion Sets of Gaussian Random Fields on R2. Dans: 5th Monash-Ritsumeikan Symposium.

KRATZ, M. et VADLAMANI, S. (2015). On Functionals of Excursion Sets of Gaussian Random Fields on R2. Dans: 9th international conference on Extreme Value Analysis (EVA 2015).

KRATZ, M. et DAS, S. (2015). On the Local Behavior of the Extreme Quantiles of the Sum of Heavy Tailed Distributed Random Variables. Dans: 60th ISI World Statistics Congress (WSC).

EMMER, S., KRATZ, M. et TASCHE, D. (2015). What is the Best Risk Measure in Practice ? Dans: 2015 IMS-China International Conference on Statistics and Probability.

EMMER, S., KRATZ, M. et TASCHE, D. (2015). What is the Best Risk Measure in Pratice? A Comparison of Standard Measures. Dans: 2nd International Conference of the Society for Economic Measurement.

DEBBABI, N. et KRATZ, M. (2014). A New Unsupervised Threshold Determination for Hybrid Models. Dans: 2014 IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP).

KRATZ, M. (2014). Contributions to Risk Theory. Dans: 2014 Actuarial Teachers and Researchers Conference.

CHEVILLON, G., BANERJEE, A. et KRATZ, M. (2014). Detecting and Forecasting Large Deviations and Bubbles in a Near-Explosive Random Coefficient Model. Dans: 68th European Meeting of the Econometric Society.

BANERJEE, A., CHEVILLON, G. et KRATZ, M. (2014). Detecting and Forecasting Large Deviations and Bubbles in a Near-Explosive Random Co-efficient Model. Dans: Summer Institute 2014 of the National Bureau of Economic Research.

CHEVILLON, G., BANERJEE, A. et KRATZ, M. (2014). Forecasting Bubbles in a Near Explosive Random Coefficient Model. Dans: 25th EC2 Conference on "Advances in Forecasting".

KRATZ, M. et CADENA, M. (2014). On a Generalization of Some Karamata Results and Standard EVT Characterizations. Dans: 37th Conference on Stochastic Processes and their Applications.

KRATZ, M. (2014). On risk aggregation and diversification benefits. Dans: Conference on Extreme Events in Finance.

KRATZ, M. (2014). On the Generalization of Karamata and Standard EVT Characterizations. Dans: 7th International Workshop on Applied Probability.

CHEVILLON, G., BANERJEE, A. et KRATZ, M. (2014). Sentiment Driven Buoyancy. Dans: 8th International Conference on Computational and Financial Econometrics (CFE 2014).

KRATZ, M. (2014). Setting the risk appetite in the presence of systemic risk. Dans: Enterprise Risk Management (ERM) conference.

KRATZ, M. (2013). A Shifted CLT: An Alternative Solution to Correctly Estimate in a Gaussian Realm the Var In Presence Of Heavy Tails. Dans: Workshop EVT - Extremes in Vimeiro 2013.

KRATZ, M., BUSSE, M. et DACOROGNA, M. (2013). Does Risk Diversification Always Work? The Answer Through Simple Modelling. Dans: 13th Annual Conference of the European Network for Business and Industrial Statistics (ENBIS-13).

KRATZ, M. et NAGEL, W. (2013). On the Capacity Functional of Excursion Sets of Gaussian Random Fields on R^2. Dans: EVA 2013.

KRATZ, M. (2013). There is a VaR Beyond Usual Approximations. Dans: Workshop on Heavy-tailed Distributions and Extreme Value Theory.

BANERJEE, A., CHEVILLON, G. et KRATZ, M. (2012). Detecting and Predicting Rational Asset Price Bubbles in a Near Explosive Random Coefficient Autoregressive Model. Dans: SMU-ESSEC Symposium on Empirical Finance and Financial Econometrics 2012.

ELBAHTOURI, L., DACOROGNA, M. et KRATZ, M. (2012). Explicit Diversification Benefit Formulas for Dependent Risks. Dans: 1st European Actuarial Journal Conference.

KRATZ, M. et NAGEL, W. (2012). The Tail Distributions of Functionals of Random Excursion Sets. Dans: Sixth International Workshop on Applied Probability (IWAP 2012).

KRATZ, M. et NAGEL, W. (2012). The Tail Distributions of Functionals of Random Excursion Sets (co-author NAGEL W.). Dans: Stereology, Spatial Statistics and Stochastic Geometry 7th International Conference (S4G 2012).

KRATZ, M. (2009). A Brief Review on EVT Basics and Operational Risk Measures. Dans: European Workshop on Risk Analysis and EVT.

KRATZ, M. (2009). Franchissement de courbe de niveau, formules de Rice et extremum. Dans: MAS.

KRATZ, M. (2009). On the decay of Chord-lengths. Dans: Stochastic Processes and their Applications.

KRATZ, M. et SHUBHABRATA, D. (2008). On efficiency and Alarm System in Reinsurance Contracts. Dans: 7th World Congress in Probability and Statistics.

KRATZ, M., ESTRADE, A. et IRIBARREN, I. (2007). Chord-distribution Functions and Rice Formulae. Application to Random Media.

KRATZ, M., ATENCIA, M. et JOYA, G. (2007). Fixed points of the Abe formulation of Stochastic Hopfield Networks. Dans: 17th ICANN. Porto.

KRATZ, M. et LEON, J. (2006). Curve crossings and specular points, d'après Longuet-Higgins. Dans: 31th Conference on Stochastic Processes and their Applications. Paris.

KRATZ, M., ESTRADE, A. et IRIBARREN, I. (2006). Funciones de distribucion de cuerdas en medios porosos. Dans: Rencontres France-Espagne-Venezuela de probabilité et statistique mathématique. Choroni.

KRATZ, M. (2005). On level functionals of Gaussian fields. Dans: 2nd Intern. Conf. of Applied Mathematics. Plovdiv.

KRATZ, M. (2004). Estadisticas de valores extremos. Dans: IX Encuentro de Matem\'atica y sus Aplicaciones y IV Seminario de Estad\'istica Aplicada. Quito.

Invité dans une conférence académique

KRATZ, M. (2024). Confronting emerging risks with flexible general models: a focus on cyber risk. Dans: 6th edition of the European Actuarial Journal Conference (EAJC). Lisbon.

KRATZ, M. (2023). Cyber Risk Analysis, with a Focus on Extremes. Dans: Workshop on Insurance and Financial Mathematics: Cyber Risk and Insurance. Hannover.

KRATZ, M. (2023). Efficient estimation for EV regression models of tail risks. Dans: Les 30 ans du LMM - Journées 'Risque'. Le Mans.

KRATZ, M. (2019). Data Analytics on Cyber Crimes Complaints Registered at C3N of PJGN. Dans: Annual SCOR Group Actuarial Conference.

KRATZ, M. (2019). Evaluating the cyber risk: the researcher point of view. Dans: Pôle Analyse : Peut-on évaluer les risques Cyber?, PJGN.

KRATZ, M. (2019). On the regularity of functionals for stationary Gaussian processes [invited session]. Dans: 41th SPA (Stochastic Processes and its Applications) conference, Northwestern Univ.

KRATZ, M. (2019). Data Analytics on Cyber Crimes Complaints Registered at C3N of PJGN. Dans: ASTIN-AFIR conference. Warsaw.

KRATZ, M. (2019). Pro-Cyclicality of Traditional Risk Measurements: Quantifying and Highlighting Factors at its Source. Dans: Zurich-Hannover workshop on Insurance and Financial Mathematics. Hannover.

Préfaces de revue

DACOROGNA, M. et KRATZ, M. (2022). Research in Cyber Risk, an Important Step for Building Resilience. *MDPI*, 10(112).

CONSTANTINESCU, C., HASHORVA, E. et KRATZ, M. (2018). Editorial: Foreword by the Guest Editors of the RARE special issue. *Annals of Actuarial Science*, 12, pp. 209-210.

Documents de travail

AKA, S., KRATZ, M. et NAVEAU, P. (2026). *Likelihood-Free Inference for Multivariate Generalized Pareto Models*. WP 2603, ESSEC Business School.

AKA, S., KRATZ, M. et NAVEAU, P. (2026). *Benchmark of Likelihood-Free Inference Methods based on Neural and Optimal Transport Approaches*. hal-05639283, ESSEC Business School.

AKA, S., KRATZ, M. et NAVEAU, P. (2025). *Multivariate discrete Generalized Pareto Distributions: Theory, simulation, and applications to dry spells*. WP 2508, ESSEC Business School.

SINGHA, S., KRATZ, M. et VADLAMANI, S. (2024). *Comparing Multivariate Distributions: A Novel Approach Using Optimal Transport-based Plots*. WP 2402, arXiv.

KRATZ, M. et KHORAMI CHOKAMI, A. (2023). *On the relation between extremal dependence and concomitants*. WP 2301, ESSEC Business School Research Center.

KRATZ, M. et DACOROGNA, M. (2023). *Managing Cyber Risk, a Science in the Making*. WP 2302, ESSEC Business School Research Center.

HAMBUCKERS, J., KRATZ, M. et USSEGLIO-CARLÈVE, A. (2023). *Efficient Estimation in Extreme Value Regression Models of Hedge Fund Tail Risks*. WP 2305, ESSEC Business School.

SINGHA, S., KRATZ, M. et VADLAMANI, S. (2023). *From geometric quantiles to halfspace depths: A geometric approach for extremal behaviour*. WP 2307, ESSEC Business School.

KRATZ, M. (2022). *Building up Cyber Resilience by Better Grasping Cyber Risk Via a New Algorithm for Modelling Heavy-Tailed Data*. WP 2210, ESSEC Business School.

KRATZ, M. et PROKOPENKO, E. (2021). *Multi-Normex Distributions for the Sum of Random Vectors. Rates of Convergence*. 2102, ESSEC Business School.

BRÄUTIGAM, M. et KRATZ, M. (2019). *Bivariate FCLT For The Sample Quantile And Measures Of Dispersion For Augmented Garch(p, q) Processes*. WP1909, ESSEC Business School.

BRÄUTIGAM, M. et KRATZ, M. (2018). *On The Dependence Between Quantiles And Dispersion Estimators*. ESSEC Business School.

BRÄUTIGAM, M., DACOROGNA, M. et KRATZ, M. (2018). *Predicting Risk with Risk Measures: An Empirical Study*. ESSEC Business School.

DAS, S. et KRATZ, M. (2017). *Diversification Benefits Under Multivariate Second Order Regular Variation*. ESSEC Business School.

CADENA, M., KRATZ, M. et OMEY, E. (2017). *New Results on the Order of Functions at Infinity*. ESSEC Business School.

DEBBABI, N., KRATZ, M. et MBOUP, M. (2016). *A Self-Calibrating Method for Heavy Tailed Data Modeling. Application in Neuroscience and Nance*. ESSEC Business School.

KRATZ, M. et VADLAMANI, S. (2016). *CLT for Lipschitz-Killing Curvatures of Excursion Sets of Gaussian Random Fields*. ESSEC Business School.

KRATZ, M., LOK, Y.H. et MCNEIL, A.J. (2016). *Multinomial VaR Backtests: A Simple Implicit Approach to Backtesting Expected Shortfall*. ESSEC Business School.

CHOTARD, R., DACOROGNA, M. et KRATZ, M. (2016). *Risk Measure Estimates in Quiet and Turbulent Times: An Empirical Study*. ESSEC Business School.

DACOROGNA, M., FRANCISCO MIGUELEZ, J.J. et KRATZ, M. (2016). *Risk Neutral Versus Real-World Distribution of Publicly Listed Bank Corporations*. ESSEC Business School.

DACOROGNA, M., ELBAHTOURI, L. et KRATZ, M. (2015). *Explicit Diversification Benefit for Dependent Risks*. ESSEC Business School.

DACOROGNA, M. et KRATZ, M. (2015). *Living in a Stochastic World and Managing Complex Risks*. ESSEC Business School.

KRATZ, M. et CADENA, M. (2014). *An Extension of the Class of Regularly Varying Functions*. ESSEC Business School.

KRATZ, M. et NAGEL, W. (2014). *On the Capacity Functional of Excursion Sets of Gaussian Random Fields on R^2*. ESSEC Business School.

BANERJEE, A., CHEVILLON, G. et KRATZ, M. (2013). *Detecting and Forecasting Large Deviations and Bubbles in a Near-Explosive Random Coefficient Model*. ESSEC Business School.

BUSSE, M., DACOROGNA, M. et KRATZ, M. (2013). *The Impact of Systemic Risk on the Diversification Benefits of a Risk Portfolio*. ESSEC Business School.

KRATZ, M. (2013). *There is a VaR Beyond Usual Approximations*. ESSEC Business School.

EMMER, S., KRATZ, M. et TASCHE, D. (2013). *What Is the Best Risk Measure in Practice? A Comparison of Standard Measures*. ESSEC Business School.

CAPA SANTOS, H., KRATZ, M. et MOSQUERA MUÑOZ, F.V. (2012). *Modelling Macroeconomic Effects and Expert Judgements in Operational Risk: A Bayesian Approach*. ESSEC Business School.

KRATZ, M. (2005). *Some contributions in probability and statistics of extremes*.

KRATZ, M. (2000). *Chaos expansions and level crossings*.

KRATZ, M. (1993). *Statistics of tails of distributions and Poisson approximation*.

Presse

KRATZ, M. (2020). Understanding Procyclicality. *ESSEC Knowledge*.

KRATZ, M. (2019). Adapting to the new risk landscape: is cyber insurable? *ESSEC Knowledge*.

KRATZ, M. (2019). S'adapter au nouvel environnement des risques : peut-on assurer le risque cyber ? *Reflets ESSEC Magazine*.

KRATZ, M. (2017). The Future of Insurance with the Advent of Artificial Intelligence. *ESSEC Knowledge*.

DACOROGNA, M., KRATZ, M. et LECOMTE, P. (2016). Changing Times Require New Tools for Risk Management. *Asia Insurance Review*, pp. 98-99.

KRATZ, M. (2016). L'actuariat, des activités et compétences en pleine évolution. *Grandes Ecoles Magazine*.

KRATZ, M. (2015). Managing Risk Is about Raising Society's Resilience. *Business Times Singapore*.

AUTRES ACTIVITES DE RECHERCHE

Membre d'un comité de lecture

2019 - 2023 REVSTAT Statistical Journal

Organisation d'une conférence

2021 ARLEStat organized session, CFE--CMS conference 2021, Royaume-Uni

2021 Colloque Actuariat SCOR & IA2021, Institut des Actuaires, France

2021 Assurabilité des risques cyber, 1er Colloque International de l'Actuariat Francophone

2021 Invited session - Stochastic Analysis in Mathematical Finance and Insurance, IMS - Bernoulli Society

Depuis 2021 ARLES series of seminars, ARLES partners

Depuis 2020 Table ronde internationale sur les questions et défis clés de la science actuarielle - Bringing Ensemble, universitaires et praticiens, Colloque international d'actuariat (virtuel)

2019 La géométrie stochastique peut-elle gérer la dynamique de la gestion des risques ?, ESSEC Business School, France

2018 'Cyber risks – Threats and Opportunities for the Asia Pacific Insurance Industry', 4th SAS ERM - ESSEC CREAR Conference, Singapour

2018 La géométrie stochastique peut-elle gérer la dynamique de la gestion des risques ?, Université de Lund, Suède

2016 'Lois Scientifiques et Modèles Mathématiques: de la physique à l'actuariat', Colloque SCOR-IA, Paris

2016	'Financial risk: Black Swan or Opportunities?', ESSEC Business School, France
2016	Conclusion de la Conférence Internationale 'RARE' sur le sujet Risk Analysis, Ruin theory, Extremes, La Baule (CREAR, avec le soutien de Swiss Re, Institut des Actuaires, SCOR science foundation, Bank of England, AMIES-IA, IFoA, BFA-SFdS), France
2015	Table Ronde Internationale sur les nouvelles règles IFRS : Actuaries meet Accountants, Paris La Défense (CREAR, avec le soutien de Labex MME-DII, Institut des Actuaires & BFA-SFdS)
2014	Mini workshop "Small data " (CREAR & BFA-SFdS), 13ème Congrès des Actuaires, Paris
2014	Colloque actuariel international (virtuel), co-organisateur (membre du comité scientifique)
2012	Conférence ESSEC CREAR - SWISS LIFE: 'Risk, Insurance and Longevity', ESSEC La Défense
2010	Groupe BFA - SFdS & ESSEC WG Risk: 'Régulation financière' , Paris, France
Depuis 2009	Organisatrice du Working-Group-on-Risk (séries de séminaires bimensuels du CREAR), ESSEC Business School, France
2009	Workshop européen EVT & Finance - Paris La défense, France
2009	Workshop 'Models and Images for Porous Media' - Paris, France
2006 - 2012	Co-organisatrice du séminaire de recherche du département IDS, ESSEC Business School, France

Affiliations

2006 - 2009	Membre de l'ANR MiPomodim et du groupe de travail sur la modélisation aléatoire des milieux poreux (Paris Descartes)
2005 - 2011	Responsable à Paris Descartes du GREFI-MEFI (Groupe de Recherche Européen Franco Italien - Matematica Fisica)

Supervision de thèses / HDR

2024	S. SINGHA (TIFR–CAM), Co-directeur de thèse, Premier Poste : Postdoc at Telecom Paris, IP Paris
2024	D. DOROBANTU (Université Claude Bernard Lyon 1), Rapporteur
2023	G. ZELLER (Technische Universität München (TUM)), Rapporteur
2023	M. ABAACH (Université Paris Cité), Rapporteur
2022	G. BURITICA (Sorbonne Université), Président de jury
2022	C. SPYCHALA (Université de Franche-Comté), Rapporteur
2020	M. Bräutigam (ESSEC Business School), Directeur de thèse
2019	A. LY (Université Paris-Est Marne-la-Vallée (UPEM)), Membre de jury

2017	M. BENTLEY (Monash University), Rapporteur
2016	M. Cadena (ESSEC Business School), Directeur de thèse
2015	N. Debbabi (URCA), Co-directeur de thèse
2015	A. CUBEROS (Université Claude Bernard Lyon 1), Rapporteur
2014	M. E. GARCÍA GARALUZ (Universidad de Malaga), Membre de jury
2013	N. CHEVANIER (Université de Rouen), Président de jury
2008	G. TOULEMONDE (Université Pierre et Marie Curie (UPMC)), Rapporteur
2004	M. ATENCIA (Universidad de Malaga), Rapporteur
	S. AKA (LSCE, CEA-CNRS), Co-directeur de thèse

Autres activités de recherche

2006 - 2009	Membre de MIPOMODIM (Projet ANR blanc - NT05-1_42030)
Depuis 2015	Membre du Comité Consultatif de QRFE, Durham Business School, Royaume-Uni
Depuis 2014	Membre du Comité Scientifique de la IRFRC Conference, NTU Singapore
2014 - 2016	Membre de l'ANR Ameriska sur l'analyse des extrêmes multivariés et l'évaluation des risques
Depuis 2013	Membre du Comité scientifique de l'ISUP-UPMC

ENSEIGNEMENT

2019	Cyber risk, ETH Risk Center, Suisse
2017	Atelier de travail de recherche du CFA France, 'A self-Calibrating Method for Heavy
2017	Singapore Actuarial Society Forum sur 'Overview of Copulas for Actuaries in
2017	Atelier de travail d'1/2 journée 'EVT and its Application to finance and insurance',,
2017	Mini workshop sur 'Modeling and Backtesting Heavy Tailed Data', Durham
2016	'An implicit backtest for Expected Shortfall via a simple multinomial approach', Bank
2016	'A self-Calibrating Method for Heavy Tailed Data Modeling', Swiss Re, Suisse
2016	Séminaire exécutif de deux jours sur la Gestion de Risques Quantitative
2013	'An Introduction to Quantitative Risk Management' - cours enseigné durant l'Ecole

ACTIVITES PROFESSIONNELLES

Autres activités professionnelles

2017	Forum d'experts: Singapore Actuarial Society forum, 'Overview of Copulas for Actuaries in Management', Singapour

2016 - Présent Forum d'experts-chercheurs (panéliste invitée), évènement en marge de la IFoA Asia conference, Kuala Lumpur, Malaisie

2015 Table ronde d'experts seniors pour discuter des problèmes clés et des défis que les chercheurs en risque et les praticiens de l'industrie perçoivent comme significatifs pour les prochaines années (panéliste invitée par l'IFoA), Londres, Royaume-Uni

2014 Forum d'Experts sur les Mesures et la Régulation du Risque en Assurance, Swiss Re Learning Center (sur invitation), Zurich, Suisse

2012 Workshop sur les Applications Statistiques aux Extrêmes Climatiques, Zurich Development Center (sur invitation), Zurich, Suisse

2022 - Présent

2021 - Présent Fondation 'La Science Statistique', Fondation "La Science Statistique", France

2010 - Présent Membre du Banque, Finance, Assurance - BFA group - SFdS (Présidente jusqu'en 2017), Société Française de Statistique (SFdS), France

2007 - Présent SFdS - Société Française de Statistique

1997 - Présent Affiliated member of the Bernoulli society, IMS - Bernoulli Society

1994 - Présent BERNOULLI SOCIETY (pour les statistiques mathématiques et les probabilités-section ISI), International Statistical Institute, Pays-Bas

SERVICE

2019 - 2021 Teaching Committee, ESSEC Business School, France

2016 - 2021 Statistics faculty recruitment

2008 - 2014 Statistics faculty recruitment, ESSEC Business School, France