Marie KRATZ
Professor

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Department: Information Systems, Data Analytics and Operations
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DIPLOMAS

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1993	Doctorate in Applied Mathematics (Université Pierre et Marie Curie (UPMC) France)
2005	HDR (Université Paris 1 Panthéon-Sorbonne France)

CERTIFICATES

2010	Global colloquium on participant-centered learning (Harvard Business School United States of America)

CAREER

FULL-TIME ACADEMIC APPOINTMENTS

2006 - 2011-08-31	Associate Professor (ESSEC Business School France)
2011 - Now	Full Professor (ESSEC Business School France)
2013 - Now	Fellow of the French Institute of Actuaries (Institut des Actuaires France)

OTHER ACADEMIC APPOINTMENTS

1994 - 2006-09-30	Assistant, then associate professor (Université Paris Descartes (Paris V) France)
2017 - 2020-07-31	Part-time Visiting Professor (Université de Lund Sweden)

2012 - 2012-12-31	Internship at FINMA, Swiss Financial Market Supervisory Authority (Swiss Financial Market Supervisory Authority FINMA Switzerland)
2008 - 2012-10-31	Co-responsible of the ESSEC-ISUP actuarial track (ESSEC Business School France)
2012 - 2026-08-31	Director of the ESSEC-ISUP actuarial track (ESSEC Business School France)
2011 - 2015-09-01	Director of the research program ESSEC - SWISS LIFE "Consequences of the population ageing on the insurances loss. Impacts on the automobile prevention" (ESSEC Business School France)

OTHER APPOINTMENTS

2013 - Now	Director of CREAR - Center of Research in Econo-finance and Actuarial Science on Risk (ESSEC Business School France)
1999 - 2000-09-30	Delegation C.N.R.S. (SAMOS-MATISSE, UMR 8595 (CNRS - Centre national de la recherche scientifique France)
2012 - 2016-12-01	Scientific Coordinator of the European Project 'RARE' - Risk Analysis, Ruin and Extremes - FP7-PEOPLE-2012-IRSES - Marie Curie Actions, which aims to strengthen research partnerships through staff exchanges and networking activities between European research organizations and research organizations from other countries. (12 partners) (ESSEC Business School France)
2011 - 2014-12-01	Director of the Research program with SWISS LIFE on: Consequences of the population ageing on the insurances loss. Impacts on the automobile prevention (ESSEC Business School France)
2013 - Now	Affiliated member to RiskLab (ETH Zurich Switzerland)
2004 - 2009-09-30	Member of MAP5 (Applied Mathematics), UMR8145 (Université Paris Descartes (Paris V) France)

PUBLICATIONS

WORKING PAPERS

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

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

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.

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.

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.

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

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

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

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.

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.

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

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.

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

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.

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.

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

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

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

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.

CONFERENCE PROCEEDINGS

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.

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*.

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.

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

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.

JOURNAL ARTICLES

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

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.

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.

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.

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

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

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

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.

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.

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

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. et NAGEL, W. (2016). On the Capacity Functional of Excursion Sets of Gaussian Random Fields on R^2. *Advances in Applied Probability*, 48(3), pp. 712-725.

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.

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.

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

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.

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.

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

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.

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

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

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.

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.

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.

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.

PRESENTATIONS AT AN ACADEMIC OR PROFESSIONAL CONFERENCE

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

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.

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.

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: 53e?mes Journe?es 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 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 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.

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

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

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.

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.

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

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

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

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

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.

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.

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.

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

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. et SHUBHABRATA, D. (2008). On efficiency and Alarm System in Reinsurance

Contracts. Dans: 7th World Congress in Probability and Statistics.

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

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.

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. 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).

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.

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

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

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. (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. (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.

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

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

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

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

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

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).

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

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

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

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

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

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

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.

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

BOOK CHAPTERS

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.

INVITED SPEAKER AT AN ACADEMIC CONFERENCE

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

HAMBUCKERS, J., KRATZ, M. et USSEGLIO-CARLEVE, A. (2023). [Plenary speaker] Efficient Estimation in Extreme Value Regression Models of Hedge Fund Tail Risk. Dans: 2023 JAFEE-ISM International Symposium. Tokyo.

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

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.

PREFACES OF A JOURNAL

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.

PRESS ARTICLE, VIDEO OR OTHER POPULAR MEDIA

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. (2020). Understanding Procyclicality. *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*.

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

GUEST EDITOR OF A JOURNAL SPECIAL ISSUE

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.

HDR

KRATZ, M. (2005). HDR. France.

RESEARCH ACTIVITIES

Organization of a conference or a seminar

2009 - Now:	Organizer of the Working-Group-on-Risk (CREAR series of fortnightly seminars) (ESSEC Business School France)

2018 - 2018:	'Cyber risks – Threats and Opportunities for the Asia Pacific Insurance Industry', 4th SAS ERM - ESSEC CREAR Conference (Singapore)
2016 - 2016:	'Lois Scientifiques et Modèles Mathématiques: de la physique à l'actuariat', Colloquium SCOR-IA, Paris
2016 - 2016:	'Financial risk: Black Swan or Opportunities?' (ESSEC Business School France)
2016 - 2016:	Concluding International 'RARE' Conference on Risk Analysis, Ruin theory, Extremes, La Baule (CREAR, with the support of Swiss Re, Institut des Actuaires, SCOR science foundation, Bank of England, AMIES-IA, IFoA, BFA-SFdS) (France)
2015 - 2015:	International Round Table on New IFRS rules : Actuaries meet Accountants, Paris La Défense (CREAR, with the support of Labex MME-DII, Institut des Actuaires & BFA-SFdS)
2014 - 2014:	Mini-workshop "Small data " (CREAR & BFA-SFdS), 13ème Congrès des Actuaires, Paris
2012 - 2012:	ESSEC CREAR - SWISS LIFE conference: 'Risk, Insurance and Longevity', ESSEC La Défense
2010 - 2010:	BFA - SFdS & ESSEC WG Risk: 'Financial Regulation' , Paris (France)
2009 - 2009:	European workshop on EVT & Finance - Paris La défense (France)
2020 - Now:	International round table on Key Issues and Challenges for Actuarial Science - Bringing Together Academics and Practitioners, International Actuarial Colloquium (Virtual),
2014 - 2014:	International Actuarial Colloquium (Virtual), co-organizer (member of the Scientific Committee)
2019 - 2019:	Can Stochastic Geometry handle Dynamics of Risk Management? (ESSEC Business School France)
2018 - 2018:	Can Stochastic Geometry handle Dynamics of Risk Management? (Université de Lund Sweden)
2021 - 2021:	Invited session - Stochastic Analysis in Mathematical Finance and Insurance (IMS - Bernoulli Society)
2021 - 2021:	Colloque Actuariat SCOR & IA2021 (Institut des Actuaires France)
2021 - 2021:	ARLEStat organized session (CFE-?CMS conference 2021 United Kingdom)
2021 - Now:	ARLES series of seminars (ARLES partners)
2021 - 2021:	Assurabilité des risques cyber (1er Colloque International de l'Actuariat Francophone)

Participation in scientific commissions or reviewer for a conference

2014 - Now:	Member of the Scientific Committee of the IRFRC Conference, NTU Singapore
2015 - Now:	Member of the Advisory Board of QRFE, Durham Business School (United Kingdom)
2013 - Now:	Member of the Scientific Committee of ISUP-UPMC
2014 - 2016:	Member of the ANR Ameriska on the Analysis of Multivariate Extremes and RISKs Assessment

Other academic activity

2006 - 2009:	Member of MIPOMODIM (Project ANR blanc - NT05-1_42030)

Editorial Board Membership

2019 - 2023:	Associate Editor of REVSTAT

Member of an academic association

2005 - 2011:	Responsible in Paris Descartes of the GREFI-MEFI (European Research Group Franco Italian - Matematica Fisica)
2006 - 2009:	Member of the ANR MiPomodim and the Working Group on Random Porous Media Modelling (Paris Descartes)

PROFESSIONAL ACTIVITIES

Member of a professional association, of an expert group or of a board of directors

1994 - Now:	BERNOULLI SOCIETY (for Mathematical Statistics and Probability- ISI section) (International Statistical Institute Netherlands)
2007 - Now:	SFdS - Société Française de Statistique
2010 - Now:	Member of the Banque, Finance, Assurance - BFA group - SFdS (President until 2017) (Société Française de Statistique (SFdS) France)
1997 - Now:	Affiliated member of the Bernoulli society (IMS - Bernoulli Society)
2021 - Now:	Fondation 'La Science Statistique' (Fondation "La Science Statistique" France)
2022 - Now:	ENISA (European Union Agency for Cybersecurity)

Other professional activity

2017 - 2017:	Experts forum: Singapore Actuarial Society forum, 'Overview of Copulas for Actuaries in Management' (Singapore)
2016 - Now:	Research experts forum (invited panelist), fringe event to the IFoA Asia conference, Kuala Lumpur (Malaysia)
2015 - 2015:	Round table of senior experts to discuss key issues and challenges that researchers of risk and practitioners from industries, perceive as significant over the next few years (Invited panelist by the IFoA), London (United Kingdom)
2014 - 2014:	Experts Forum on Risk Measures and Regulation in Insurance, Swiss Re Learning Center (by invitation), Zurich (Switzerland)
2012 - 2012:	Workshop on Statistical Applications to Climate Extremes, Zurich Development Center (by invitation), Zurich (Switzerland)

SERVICES

2008 - 2014:	Statistics faculty recruitment (ESSEC Business School France)
2016 - 2021:	Statistics faculty recruitment
2019 - 2021:	Teaching Committee (ESSEC Business School France)