# Cyril Bénézet

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## Academic career, Education

2020- **Maître de conférences (Assistant Professor) at ENSIIE**, *Laboratoire de Mathématiques et Modélisation d'Évry (LaMME)*, Évry

2019-2020 **Postdoctoral researcher in the chaire Stress Test: RISK Management and Financial Steering led by Emmanuel Gobet**, *CMAP, Ecole Polytechnique*, Palaiseau

2016-2019 **PhD in Applied Mathematics, under the supervision of Jean-François Chassagneux**, *Funded in the scope of the research project "Advanced techniques for non-linear pricing and risk management of derivatives" under the aegis of the Europlace Institut of Finance, with the support of AXA Research Fund*, Université Paris Diderot, LPSM, Paris
Defended on 2019, November 5

2015-2016 **Master of Applied Mathematics MASEF**, *Université Paris Dauphine*, Paris, with honors, rank 1

## Responsabilities

2021- **ENSIIE Administration board elected member**

2021- **ENSIIE "Advisory board" ("Conseil de Perfectionnement") elected member**

2020- **In charge of the ENIT/ENSIIE joint degree**

2020- **In charge of the 1st year ENSIIE/L3 Mathematics Univ. Evry joint degree**

2020- **ENSIIE 1st year interships pedagogical supervisor**

2019- **Reviews for Stochastic Processes and their Applications, Applied Mathematics & Optimization, Stochastic Models, Stochastics, Quantitative Finance, Mathematical Control and Related Fields, SIAM Journal on Control and Optimization**

2018-2019 **LPSM PhD students representant, elected member**, *LPSM Board*

## Organization of conferences, workshops and seminars

2023 **Co-organizer of the 2nd Florence-Paris Workshop on Mathematical Finance**, *2023, July 10-11*, Florence, Italy

2023 **Co-organizer of the London-Paris Bachelier Seminar, 7th edition**, *2023, September 14-15, London, UK*

2022- **Co-organizer of the Probability Seminar of the LaMME**, *Evry, France*

2022 **Co-organizer of the London-Paris Bachelier Seminar, 6th edition**, *2022, September 15-16, Paris, France*

2017 **Organizer of the CEMRACS 2017 Seminar**, *CIRM*, Luminy, Marseille

## Research Funded Projects

2023- **Project "Risk management in times of unprecedented geo-political volatility: a machine-learning approach", with A. Brini and G. Toscano, funded by IEF together with the LABEX Louis Bachelier**

2022- **ANR ReLISCoP member, coordinated by A. Richou**

## Publications

### Published papers

2023 **Transform MCMC schemes for sampling intractable factor copula models**, *with E. Gobet and R. Targino*, Methodology and Computing in Applied Probability volume 25, Article number: 13 (2023)

2022 **Switching problems with controlled randomisation and associated obliquely reflected BSDEs**, *with J.-F. Chassagneux, A. Richou*, Stochastic Processes and their Applications, Volume 144, February 2022, Pages 23-71

2021 **A Numerical Scheme for the Quantile Hedging problem**, *with J.-F. Chassagneux, C. Reisinger*, SIAM J. Finan. Math., 12(1), 110–157

2019 **A sparse grid approach to balance sheet risk measurement**, *with J. Bonnefoy, J.-F. Chassagneux, S. Deng, C. Garcia Trillos, L. Lenôtre*, ESAIM: PROCEEDINGS AND SURVEYS, February 2019, Vol. 65, p. 236-265

### Preprints

**Hedging Valuation Adjustment for Callable Claims**, *with S.Crépey and D. Essaket*, submitted (Mathematical Finance)

**Hedging Valuation Adjustment and Model Risk**, *with C. Albanese and S. Crépey*, submitted (Mathematical Finance)

### Working papers

**Quantization for stochastic control problems**

**Weak hedging: a relaxed optimal transport approach**, *with J.-F. Chassagneux and M. Yang*

**Weak singular BSDEs and almost optimal liquidation**, *with A. Popier*

### Other

2019 **PhD thesis: Study of numerical methods for partial hedging and switching problems with costs uncertainty**, *under the supervision of Jean-François Chassagneux*

2016 **Master "mémoire": McKean-Vlasov processes, mean field optimal stopping**, *under the supervision of Idris Kharroubi*

## Talks

**DISEI Seminar**, *Firenze, Italy*, 2023, March 30

**Bachelier Seminar**, *Paris, France*, 2023, February 3

**CUHK-HKUST-NUS workshop in Financial Mathematics**, *CUHK, Hong Kong*, 2023, January 20

**Seminar on Financial Mathematics and Applied Mathematics**, *HKUST, Hong Kong*, 2023, January 19

**Workshop Optimal Switching, Mean Field and Applications**, *Le Mans, France*, 2022, October 11-12

**Research in Options**, *Rio de Janeiro, Brazil*, 2022, August 20-24

**The 9th International Colloquium on BSDEs and Mean Field Systems**, *Annecy, France*, 2022, June 27 - July 1

**Bachelier Seminar**, *Paris, France*, 2022, January 28

**DKU-NUSRI Joint Workshop on Pure and Applied Mathematics 2022**, *Duke Kunshan University*, 2022, January 6-9

**Rencontre ANR ReLISCop**, *Bordeaux, France*, 2021, December 16-17

**1st Florence-Paris Workshop on Mathematical Finance**, *Florence*, 2021, October 27-29

**Seminar Stochastic Methods and Finance**, *CERMICS*, 2021, March 25

**London-Paris Bachelier online workshop**, *2021, March 12*

**IdR "Advanced techniques for non-linear pricing and risk management"**, *Online Closing Workshop*, 2020, November 13

**Seminar Probabilities and Mathematical Finance**, LaMME, UEVE, 2020, October 8

**Seminar Finance Group**, ESILV, 2020, July 08

**Seminar Stress Test Chair**, 2020, June 30

**Seminar Probabilities and Mathematical Finance**, LaMME, 2020, March 5

**Machine Learning Journal Club**, *Ecole Polytechnique*, CMAP, 2020, February 27

**Seminar Mathematical Finance, Actuary and Numerical Probability**, LPSM, 2019, October 10

**International Conference on Control, Games and Stochastic Analysis**, *Hammamet*, 2018, October 28

**Seminar Probabilities & Statistics**, *Maine University*, Le Mans, 2018, October 23

**Seminar Finance & Modeling**, *Paris 1 University*, Paris, 2018, September 19

**BSDEs, Information and McKean-Vlasov equations**, *University of Leeds*, Leeds, 2018, September 10-12

**MAS Days**, *Bourgogne University*, Dijon, 2018, August 31

**Young Researchers Seminar**, *CERMICS, Ecole des Ponts ParisTech*, Paris, 2018, May 02

**Young Researchers Seminar**, *LPMA, Paris 6 University*, Paris, 2017, November 06

**CEMRACS**, *CIRM*, Luminy, Marseille, August 2017

**PhD Students day**, *LPMA, Paris 6 Univeristy*, Paris, 2017, May 04

**2nd USPC-NUS Workshop on New Challenges in Financial Risk Control**, *National University of Singapore*, Singapore, 2017, April 11-12

## Teaching

### Current teaching

2020/2021- **XVAs and Regulation**, *2nd year Master Degree (M2QF)*, Evry University and ENSIIE

2018/2019- **Life Insurance**, *2nd year Master Degree (M2QF, M2GRA)*, Evry University and ENSIIE

2021/2022- **Supervision of Cutting Edge projects**, *2nd year Master Degree (M2QF)*, Evry University and ENSIIE

2021/2022- **Stochastic Processes**, *1st year Master Degree (M1ISF)*, Paris 2 University

2022/2023- **Stochastic Calculus**, *2nd year ENSIIE*, ENSIIE

2022/2023- **Mathematical Modelling**, *1st year ENSIIE*, ENSIIE

2020/2021- **Martingales and Markov Chains**, *Teaching Fellow, 2nd year ENSIIE*, ENSIIE

2020/2021- **Probability**, *Teaching Fellow, 1st year ENSIIE*, ENSIIE

2020/2021- **Mathematical Projects supervision**, *1st year ENSIIE*, ENSIIE

### Previous teaching

2022 **1st year internship supervision – Tangui MICHAL : "Partial hedging in discrete time markets"**, ENSIIE

2018/2019- 2020/2021 **Stochastic Processes**, *Teaching Fellow, 1st year Master Degree (M1ISF)*, Paris 2 University

2018/2019 **Introduction to Financial Mathematics and Stochastic Calculus**, *Teaching Fellow, 1st year Master's Degree (M1 ISIFAR)*, Paris 7 University

2017/2018 **Stochastic Calculus and Financial Mathematics**, *Teaching Fellow, 2nd year Master's Degree (M2 ISIFAR)*, Paris 7 University

2016/2017 **Mathematical Reasonning**, *Teaching Fellow, 1st year Bachelor Degree (L1 Math-Info)*, Paris 7 University

2016/2017- 2018/2019 **Elementary Algebra**, *Teaching Fellow, 1st year Bachelor Degree (L1 MASH, L1 Math-Info)*, Paris 7 University

## Work experience

2016-2019 **GIE AXA, Group Risk Management**, Interactions with the GRM team at GIE AXA in the scope of my PhD Thesis – SCR computation in a Solvency II framework ; lapse risk modeling and computation

2016 **GIE AXA, Group Risk Management**, 5 months internship: *Variable Annuities, Solvency Capital Requirement*, Development of alternative methods to compute the SCR for structured products such as Variable Annuities

## Award

2012 **PGSM-France laureate**, *Fondation Sciences Mathématiques de Paris*