



Yvik Swan

Curriculum Vitae

1 General information

Name: Swan, Yvik (Yves-Caoimhin)
Birth: December 30 1979 in Dublin (Eire)
Citizenship: Belgian and Irish
Marital status: Married, four children (born 2006, 2008, 2010 and 2013)
E-mail: yvik.swan@ulb.be
Homepage: <https://yvik.swan.web.ulb.be/>
Private address: Rue Albert 1er 63, B1490 Court Saint Etienne
Professional address: Université libre de Bruxelles, Département de Mathématique CP210,
Boulevard du Triomphe B1050 Bruxelles
Languages: French and English (mother tongues), Dutch (fluent), Spanish (notions)

2 Diplomas

2004 - 2007 PhD in Sciences (Statistics)

Université libre de Bruxelles.

Dissertation: «On two unsolved problems in probability»

Advisor: F. T. Bruss

Defence on June 19, 2007

2002 - 2004 DEA in Statistics and Operations Research

Université libre de Bruxelles.

Dissertation: «About the three player ruin problem»

Advisor: F. T. Bruss

1998 - 2002 Licence en Sciences Mathématiques, orientation mathématique pure

Université libre de Bruxelles.

Dissertation: «Geometric structures on Kaehler manifolds and their intrinsic torsion»

Advisor: L. Schwachhöfer

3 Scientific career

Since October 2022

Title: Professeur au Département de Mathématique de l'ULB

Employer: Université libre de Bruxelles

October 2019 - September 2022

Title: Chargé de cours définitif au Département de Mathématique de l'ULB

Employer: Université libre de Bruxelles

January 2017 - September 2019

Title: Chargé de cours définitif au Département de Mathématique de l'ULiège

Employer: Université de Liège

January 2014 - December 2016

Title: Chargé de cours temporaire au Département de Mathématique de l'ULiège

Employer: Université de Liège

March 2012 – December 2013

Title: Research associate at the UR en mathématique, Université du Luxembourg

Employer: Université du Luxembourg

October 2011 - March 2012:

Title: Chargé de recherche CR4 FNRS au département de mathématique de l'ULB

Employer: FNRS

October 2008 - September 2011

Title: Chargé de recherche FNRS au département de mathématique de l'ULB

Employer: FNRS

October 2002 - September 2008

Title: Teaching Assistant au Département de Mathématiques de l'ULB

Employer: Université libre de Bruxelles

4 Teaching career

4.1 Additional positions

- 2020 - 2021: invited lecturer at University of Luxembourg
- 2019 - 2020: maître d'enseignement at the Department of Mathematics of ULiège
- 2012 - 2019: chargé de cours 0.1 ETP at ULB's Faculty of Medicine
- 2018 - 2019: invited lecturer at University of Luxembourg
- 2017 - 2019: maître d'enseignement at Solvay Business School
- 2014 - 2019: maître d'enseignement at the Department of Mathematics of the ULB
- 2013 - 2014: maître d'enseignement at the Department of Mathematics of ULiège
- 2010 - 2016: Faculty at Solvay Business School — Executive education

4.2 Teaching load

2021 - 2022 (140 hours)

- ULB: Time Series 1 (36h, MA Math Actu Big Data, 53 students, 5 ECTS), Modélisation mathématique pour les sciences médicales (14h, BA1 médecine et dentaire, 182 students, 5 ECTS), Probabilité I (30h, BA1 mathématique, 78 students, 5 ECTS), Probabilité II (30h, BA3 mathématique, 42 students, 5 ECTS), Travail de recherche et communication scientifique (BA3 mathématique, 21 students, 5 ECTS)

2020 - 2021 (140 hours)

- ULB: Time Series 1 (36h, MA Math Actu Big Data, 60 students, 5 ECTS), Modélisation mathématique pour les sciences médicales (14h, BA1 médecine et dentaire, 188 students, 5 ECTS), Probabilité I (30h, BA1 mathématique, 78 students, 5 ECTS), Probabilité II (30h, BA3 mathématique, 49 students, 5 ECTS), Travail de recherche et communication scientifique (BA3 mathématique, 21 students, 5 ECTS)
- ULuxembourg: Analyse 3 (30h, BA2 mathématique, 30 students, 5ECTS)

2019 - 2020 (138 hours)

- ULB: Time Series 1 (36h, MA Math Actu Big Data, 38 students), Modélisation mathématique pour les sciences médicales (12h, BA1 médecine et dentaire, 174 students), Probabilité I (30h, BA1 mathématique, 66 students), Probabilité II (30h, BA3 mathématique, 39 students), Cours projet (BA3 mathématique, 20 students)
- ULiège: Probabilité 2 (30h, BA2 mathématique)

2018 - 2019 (218 hours)

- ULB: Probabilités (20h, BA2 science économique and Solvay, 699 students), Modélisation mathématique pour les sciences médicales (12h, BA1 médecine et dentaire, 125 students), Probabilité I (30h, BA1 mathématique, 66 students)
- ULiège: Probabilité et Statistiques 1 (30h, BA1 mathématique, 48 students), Probabilité et Statistiques 2 (30h, BA2 mathématique, 16 students), Cours projet (BA3 mathématique, 11

students), Processus stochastiques (10h, MA1 mathématique, 5 students), Statistique pour la physique (30h, BA3 physique, 35 students), Large Sample analysis (36h, MA Big data, 24 students)

- ULuxembourg: Algèbre linéaire II (20h, BA2 mathématique, 30 students)

2017 - 2018 (188 hours)

- ULB: Probabilités (20h, BA2 science économique et Solvay, 619 students), Modélisation mathématique pour les sciences médicales (12h, BA1 médecine et dentaire, 59 students), Probabilité I (30h, BA1 mathématique, 68 students)
- ULiège: Probabilité et Statistiques 2 (30h, BA2 mathématique, 14 students), Probabilité et Statistiques 3 (30h, BA3 mathématique, 16 students), Cours projet (BA3 mathématique, 11 students), Statistique pour la physique (30h, BA3 physique, 41 students), Large Sample analysis (36h, MA Big data, 8 students)

2016 - 2017 (162 hours)

- ULB: Modélisation mathématique pour les sciences médicales (12h, BA1 médecine et dentaire, 293 students), Mathématiques en pharmacie (30h, BA1 mathématique, 104 students)
- ULiège: Probabilité et Statistiques 2 (30h, BA2 mathématique, 20 students), Introduction aux processus stochastiques (30h, BA2 mathématique and BA3 informatique, 15 students), Processus stochastiques (30h, MA1 mathématique, 4 students), Statistique pour la physique (30h, BA3 physique, 31 students), Cours projet (BA3 mathématique, 10 students)

2015 - 2016 (177 hours)

- ULB: Modélisation mathématique pour les sciences médicales (12h, BA1 médecine et dentaire, 170 students), biostatistiques (30h, BA3 kinésiothérapie, 109 students), Solvay Business School of Economics and Management: Quantitative Analysis for the Executive Master in Finance (15h)
- ULiège: Probabilité et Statistiques 2 (30h, BA1 mathématique, 16 students), Introduction aux processus stochastiques (30h, BA2 mathématique et BA3 informatique, 29 students), Probability and Statistics IV (30h, MA1 mathématique), Statistique pour la physique (30h, BA3 physique), Modèles linéaires (30h, MA1 mathématique, 4 students)

2014 - 2015 (162 hours)

- ULB: Modélisation mathématique pour les sciences médicales (12h, BA1 médecine et dentaire, 421 students), Solvay Business School of Economics and Management: Quantitative Analysis for the Executive Master in Finance (15h)
- ULiège: Probabilité et Statistiques 2 (30h, BA1 mathématique, 9 students), Introduction aux processus stochastiques (30h, BA1 mathématique et BA3 informatique, 23 students), Statistique pour la physique (30h, BA3 physique), Modèles linéaires (30h, MA1 mathématique, 6 students), Statistiques générales (15h, BA3 et MA1 biologie et géographie, 71 students)

2013 - 2014 (95 hours)

- ULB: Bases mathématiques pour les sciences médicales (20h, BA1 médecine, vétérinaire, dentisterie et sciences biomédicales) Solvay Business School of Economics and Management: Quantitative Analysis for the Executive Master in Finance (15h)
- ULiège: Probabilité et Statistiques 2 (30h, BA1 mathématique, 9 students)
- ULuxembourg: Enseignements volontaires à l'Université du Luxembourg: Analyse II (30h, BA2 engineering and physics)

2012 - 2013 (65 hours)

- ULB: Bases mathématiques pour les sciences médicales (20h, BA1 médecine, vétérinaire, dentisterie et sciences biomédicales), Solvay Business School of Economics and Management: Quantitative Analysis for the Executive Master in Finance (15h)

- ULuxembourg: Enseignements volontaires à l'Université du Luxembourg: Analyse II (30h, BA2 engineering and physics)

2009 - 2012 (45 hours/year)

- ULB: Bases mathématiques pour les sciences médicales (30h, BA1 médecine, vétérinaire, dentisterie et sciences biomédicales), Solvay Business School of Economics and Management: Quantitative Analysis for the Executive Master in Finance (15h)

2008 - 2009 (80 hours)

- ULB: Stochastic models applied to computer sciences (30h, MA1 computer science) et Processus stochastiques (30h, MA1 mathematics), Assistant à la Solvay Business School of Economics and Management (Applied statistics, Managers' Exchange Training Programme)

From 2002 to 2008 I was Assistant at the Department of Mathematics, Université libre de Bruxelles (exercise sessions for a variety of courses, including Calcul différentiel et intégral, Probabilité I&II, Statistiques, Analyse multivariée, Statistique appliquée); the teaching load was of approximately 250 hours per year.

4.3 PostDoc mentoring

- Pierre Zuyderhoff (01/2021 - 04/2022)
- Elise Vandomme (01/2019 - 01/2020)
- Benjamin Arras (09/2015 - 10/2016) - now "Maître de conférence" at Lille 1, France
- Guillaume Mijoule (09/2015 - 09/2017)
- Thomas Gallouët (08/2016 - 09/2017) - now "Maître de conférence" at INRIA Paris - team MOKAPLAN, France

4.4 PhD supervision

- Adrian Fischer (started October 2020)
- Gilles Germain (started October 2020)
- Marie Ernst, "*Contributions to spatial data analysis and Stein's method*", Thesis ULiège (defended 17 December 2019)
- Emilie Clette (10/2015 - 09/2017)

4.5 Master thesis supervision

- Emiliano Degasperi, "Weather Forecasting for Renewable Energy Generation: a Time Series Analysis Approach", (ULB 2021)
- Luigi Ghiani, "Modelling of Electricity Trading in the Epex Intraday Market with Machine Learning, Stochastic Volatility Models and Time Series", (ULB 2021)
- Jessica Undi, "Measures of correlation", (ULB, 2021)
- Ferdinand Rapin, preparation for the thesis, "Stein equations", (ULB 2022)
- Steven Vander Eeckt, "On time series", (ULB 2020)
- Germain Gilles, "Constantes de Poincaré et indice de Sobol", (ULB 2020)
- Tom Demaret, "Shrinkage estimators for elliptical distributions", (ULiège 2019)
- Aslan Davud, "Statistical methods in soccer", (ULiège 2020)
- Cécile Adam, "Some asymptotic distributional results and their rates of convergence", (KUL 2016)
- Adrien Plomteux, "Stein factors for absolutely continuous distributions with interval support and applications", (ULg 2016)
- Charline Dony, "Distances entre mesures de probabilité", (ULg 2015)
- Rachel Syfer, "Caractérisations de Stein et Applications", (ULB 2012)
- Carine Bartholmé, "The disruption problem in discrete time", (ULB 2010)
- Charlotte Devaux, "Problèmes de meilleurs choix", (ULB 2007)

5 Scientific activities

5.1 Research themes

My research is mainly in probability theory, on questions of distributional approximation. Broadly speaking, the research question which animates me and my group is the following: “*given two random objects F_n and F_∞ , provide non trivial, and tractable estimates of some relevant measure $\mathcal{D}(F_n, F_\infty)$ of the dissimilarity between the distributions of F_n and F_∞* ”. Much of my research consists in considering this question under a variety of assumptions on the *approximating sequence F_n* , the *target F_∞* , and the *discrepancy $\mathcal{D}(F_n, F_\infty)$* . I am interested both in specific problems originating from statistics, machine learning, quantum mechanics, algorithmics, etc. and by abstract methodological considerations of a more fundamental nature. At the heart of these considerations lies a theory know as “Stein’s method of approximate computation of expectations” which advocates to estimate certain classes of expectations in terms of properties of a family of probability-characterising linear operators called “Stein operators”. A large part of my research is thus dedicated to the construction of such operators, and the study of their properties, a topic which lies at the intersection between many disciplines, including functional analysis, Markov semigroup theory, Malliavin calculus, PDE theory, optimal transport, and information theory.

On the side I also have an interest in questions from mathematical statistics (particularly rank based methods, Bayesian statistics, shrinkage estimators), Monte Carlo methods and also, although it’s been a while since I last worked on this, sports modelling.

5.2 Publications

Google scholar: 752 citations, h-index: 15 and i10-index: 20.

In preparation

1. Discrete Stein methods and Poincaré inequalities (with G. Germain)
2. A normal approximation for the posterior in one-dimensional exponential families (with A. Fischer, R. Gaunt and G. Reinert)
3. Stein’s method for GEV approximation (with A. Fischer and R. Gaunt)
4. Stein’s method of moments (with A. Fischer and R. Gaunt)
5. GOF tests for distributions satisfying an additive size-bias assumption and generalisations (with B. Ebner)
6. Regularity of solutions of the multivariate Stein equation (with R. Gaunt, S. Li, T.O. Gallouet and G. Mijoule)

Preprints

7. Stein’s Method Meets Statistics: A Review (with A. Anastasiou, A. Barp, F-X Briol, B. Ebner, M. Girolami, C. Ley, L. Mackey, C. Oates, G. Reinert) under 2d round revision for Statistical Science
8. Stein’s method and approximating the multidimensional quantum harmonic oscillator (with I. McKeague) under 2d round revision for Journal of Applied Probability
9. On infinite covariance expansions (with M. Ernst and G. Reinert) under 2d round revision for ALEA
10. Stein’s density method for multivariate continuous distributions (with G. Mijoule and G. Reinert) under 2d round revision for Electronic Journal of Probability

Publications in peer reviewed journals (with ranking¹)

11. A note on one-dimensional Poincaré inequalities by Stein-type integration (with G. Gilles) to appear in *Bernoulli* (2022)
12. Simple variance bounds with applications to Bayesian posteriors and intractable distributions (with F. Daly, F. Ghaderinezhad, and C. Ley) *ALEA*, Vol. 18, 1845–1858 (2021)
13. Distances between distributions via Stein's method (with M. Ernst) *Journal of Theoretical Probability*, 35, 949–987 (2022) (AMS ranking: B, SJR ranking: Q2)
14. First order covariance inequalities via Stein's method (with M. Ernst and G. Reinert) *Bernoulli* 26(3), 2051–2081 (2020) (AMS ranking: A, SJR ranking: Q1)
15. The adaptive sampling revisited (with M. Drescher and G. Louchard) *Discrete Mathematics & Theoretical Computer Science* 21 no. 3 (2019) (AMS ranking: B, SJR ranking: Q2)
16. An algebra of Stein operators (with G. Mijoule and R. Gaunt) *Journal of Mathematical Analysis and Applications* 469.1: 260-279 (2019) (AMS ranking: A, SJR ranking: Q2)
17. A bound on the 2-Wasserstein distance between linear combinations of independent random variables (with B. Arras, E. Azmoodeh and G. Poly) *Stochastic Processes and their Applications* 129, 2341–2375 (2019) (AMS ranking: A, SJR ranking: Q1)
18. Stein characterizations for linear combinations of gamma random variables (with B. Arras, E. Azmoodeh and G. Poly) *Brazilian Journal of Probability and Statistics* 34(2), 394–413 (2020) (AMS ranking: C, SJR ranking: Q3)
19. Some new Stein operators for product distributions (with G. Mijoule and R. Gaunt) *Brazilian Journal of Probability and Statistics* 34(4), 795-808 (2020) (AMS ranking: C, SJR ranking: Q3)
20. Stein's method, many interacting worlds and quantum mechanics (with I. McKeague and E. Peköz) *Bernoulli*, 25.1: 89-111 (2019) (AMS ranking: A, SJR ranking: Q1)
21. IT formulae for gamma target: mutual information and relative entropy (with B. Arras) *IEEE transactions on information theory*, 64.2: 1083-1091 (2018). (SJR ranking: Q1)
22. A stroll along the gamma (with B. Arras) *Stochastic Processes and their Applications*, 127(11), 3661-3688 (2017) (AMS ranking: A, SJR ranking: Q1)
23. Distances between nested densities and a measure of the impact of the prior in Bayesian statistics (with C. Ley and G. Reinert). *Annals of Applied Probability*, Vol. 27, No. 1, 216-241 (2017) (AMS ranking: A*, SJR ranking: Q1)
24. Efficient ANOVA for directional data (with C. Ley and T. Verdebout). *Annals of the Institute of Statistical Mathematics*, Volume 69, Issue 1, 39–62 (2017) (AMS ranking: A, SJR ranking: Q2)
25. Stein's method for comparison of univariate distributions (with C. Ley and G. Reinert) *Probability Surveys* 14, 1-52 (2017) (AMS ranking: C, SJR ranking: Q2)
26. On the rate of convergence in de Finetti's representation theorem (with G. Mijoule and G. Peccati). *ALEA* 13, 1-23 (2016) (AMS ranking: C, SJR ranking: Q1)
27. A general parametric Stein characterization (with C. Ley). *Statistics and Probability Letters* 111, 67-71 (2016) (AMS ranking: B, SJR ranking: Q2)
28. One step further: an explicit solution to Robbins' problem when $n=4$ (with R. Dendievel) [with notebook]. *Mathematica Applicanda* Vol. 44(1), 135–148 (2016) (not ranked)
29. Parametric Stein operators and variance bounds (with C. Ley). *Brazilian Journal of Probability and Statistics* 30, 171-195 (2016) (AMS ranking: C, SJR ranking: Q3)
30. Integration by parts and representation of information functionals (with G. Peccati and I. Nourdin). *IEEE International Symposium on Information Theory (ISIT)*, 2217-2221 (2014) (AMS ranking A, SJR ranking: Q1)
31. Entropy and the fourth moment phenomenon (with G. Peccati and I. Nourdin). *The Journal of Functional Analysis* 266 (5), 3170-3207 (2014) (AMS ranking: A*, SJR ranking: Q1)
32. Maximum likelihood characterization of distributions (with M. Duerinckx and C. Ley). *Bernoulli* 20 (2), 775-802 (2014) (AMS ranking: A, SJR ranking: Q1)

¹ The journals are ranked according to AMS ranking https://www.austms.org.au/Rankings/0104_AustMS_final_ranked.html which is not quite up to date and also scimagojr as retrieved on January 12 2020. The AMS ranking ranges from A* to C in decreasing terms of “prestige”; the SJR ranking ranges from Q1 to Q4 in the same order.

33. On Hodges and Lehmann's "6/pi result" (with M. Hallin and T. Verdebout). Springer Proceedings in Mathematics & Statistics 68, 137-153 (2014) (not ranked)
34. Stein's density approach and information inequalities (with C. Ley). Electronic Communications in Probability 18 (7), 1-14 (2013) (AMS ranking: B, SJR ranking: Q2)
35. A note on the normal approximation error for randomly weighted self-normalized sums (with S. Hoermann). Periodica Math. Hungar. 67 (2), 143-154 (2013) (AMS ranking: B, SJR ranking: Q2)
36. Local Pinsker inequalities via Stein's discrete density approach (with C. Ley). IEEE transactions on information theory 59 (9), 5584-5591 (2013) (SJR ranking: Q1)
37. Optimal rank-based inference for spherical location (with C. Ley, B. Thiam and T. Verdebout). Statistica Sinica 23 305–332 (2013) (AMS ranking: A, SJR ranking: Q1)
38. One-step R-estimation in linear models with stable errors (with M. Hallin, T. Verdebout and D. Veredas). Journal of Econometrics 172 (2), 195–204 (2013) (SJR ranking: Q1)
39. A stochastic analysis of table tennis (with Y. Dominicy and C. Ley). Braz. J. Probab. Stat. 27 (4), 467-486 (2013) (AMS ranking: C, SJR ranking: Q3)
40. A stochastic analysis of some two-person sports (with D. Paindaveine). Studies in Applied Mathematics 127 221-249 (2011) (AMS ranking: A*, SJR ranking: Q1)
41. Rank-based testing in linear models with stable errors (with M. Hallin, T. Verdebout and D. Veredas). J. Nonparametr. Stat., 23 305-320 (2011) (AMS ranking: B, SJR ranking: Q2)
42. A continuous time approach to Robbins' problem of minimizing the expected rank (with F. T. Bruss). J. Appl. Probab. 46 1-18 (2009) (AMS ranking: A, SJR ranking: Q2)
43. A Matrix-Analytic approach to the N-player ruin problem (with F. T. Bruss). J. Appl. Probab. 43 755-766 (2006) (AMS ranking: A, SJR ranking: Q2)
44. The Schwarz-Christoffel transformation as a tool in applied probability (with F. T. Bruss). Math. Scientist 29 21–32 (2004) (SJR ranking: Q4)

Working papers

45. Stein operators, kernels and discrepancies for multivariate continuous distributions (with G. Mijoule and G. Reinert)
46. Regularity of solutions of the Stein equation and rates in the multivariate central limit theorem (with T. Gallouët and G. Mijoule) (2018)
47. A new approach to the Stein-Tikhomirov method, with applications to the second Wiener chaos and Dickman convergence (with B. Arras, G. Mijoule and G. Poly) (2019)
48. Stein-type covariance identities: Klaassen, Papathanasiou and Olkin-Shepp type bounds for arbitrary target distributions (with M. Ernst and G. Reinert) (2019)
49. Stein's method on the second Wiener chaos: 2-Wasserstein distance (with B. Arras, E. Azmoodeh and G. Poly) (2016)
50. Rates of convergence towards the Fréchet distribution (with C. Bartholmé) (2013)
51. On a connection between Stein characterizations and Fisher information (with C. Ley). ECARES working paper (2011)
52. Discrete Stein characterizations and discrete information distances (with C. Ley). ECARES working paper (2011)
53. A unified approach to Stein characterizations (with C. Ley). ECARES working paper (2011)

Proceedings

54. Nombres de Catalan: alcool, ruine et probabilités (short article, in french). Colloquium Catalan, Université de Liège (2014)
55. Excursions le long de la Gaussienne (review article, in french). Proceedings of the Seventh Brussels Summer School of Mathematics (2014)
56. Inférence fondée sur les rangs dans les familles de lois alpha-stables. Proceedings of the 41èmes Journées de Statistique, SFdS, Bordeaux (2009)
57. A continuous time approach to Robbins' problem and open questions. Proceedings of the International Workshop in Sequential Methodologies, Troyes (2009).

58. Notes from the second Brussels Summer of Mathematics (with C. Ley). Lecture notes, 37 pages (2009)
59. Notes of the Brussels Summer of Probability and Optimization (with C. Ley). Lecture notes, 36 pages (2008)

Thesis and memoirs

60. A contribution to the study of Robbins' problem. Mémoire de l'Académie Royale des Sciences, des Lettres et des Beaux-Arts, 60 pages (2011) — prix de l'académie
61. On two unsolved problems in probability, Ph.D. thesis, Université libre de Bruxelles (June 2007)
62. On the three-player ruin problem, Master's thesis, Université libre de Bruxelles (2004)
63. Geometric structures on complex manifolds and their intrinsic torsion, Diploma thesis, Université libre de Bruxelles (2002)

Editorial tasks

64. Comptes rendus des journées MATH.en.JEANS (avec J. Leroy, M. Ernst, E. Charlier éditeurs) (2018)
65. Comptes rendus des journées MATH.en.JEANS (avec J. Leroy, M. Ernst, E. Charlier éditeurs) (2017)
66. Notes de la cinquième BSSM (with N. Richard, C. Bartholmé, Y. Dominicy, T. Connor and L. Kidzinski editors). Lecture notes, 159 pages, ISSN 2034-466X (2013)
67. Notes de la quatrième BSSM (with N. Richard, G. Van Bever, C. Bartholmé, Y. Dominicy and C. Ley editors). Lecture notes, 171 pages, ISSN 2034-466X (2012)
68. Notes de la troisième BSSM (with N. Richard and C. Ley editors). Lecture notes, 91 pages, ISSN 2034-466X (2011)

Collaborators

Close international collaborations: Benjamin Arras (Lille), Ehsan Azmoodeh (Helsinki), Bruno Ebner (Karslsruhe), Robert Gaunt (Manchester), Siegfried Hörmann (Graz), Ian McKeague (Columbia), Guillaume Mijoule (Paris), Ivan Nourdin (Luxembourg), Giovanni Peccati (Luxembourg), Erol Peköz (Boston), Guillaume Poly (Rennes), Gesine Reinert (Oxford), Baba Thiam (Lille 3)

Close belgian collaborations: Thomas Bruss (ULB), Rémi Dendievel (ULB), Yves Dominicy (ECARES), Mitia Duerinckx (ULB), Marie Ernst (ULiège), Céline Esser (ULiège), Marc Hallin (ULB), Guy Louchard (ULB), Christophe Ley (Ghent), Davy Paindaveine (ULB) Thomas Verdebout (ULB), David Veredas (ULB)

5.3 Distinctions, grants and prizes

- 2020 - 2023: ARC consolidator (211K euros) from ULB
- 2020 - 2022: Crédit de Recherche (CDR, 33K euros) from FNRS
- 2018: Mobility and Congress funding (3K euros) from FNRS
- 2016 - 2018: Mandat d'Impulsion Scientifique (MIS, 240K euros) from FNRS
- 2015 - 2020: Welcome grant (165K euros) from Université de Liège
- 2011 - 2012: Chargé de recherches (CR4) from FNRS
- 2011: Special ASA - Journal of Nonparametric Statistics invited paper at the Graybill conference in Fort-Collins, Colorado, USA.
- 2010: Prix du Concours annuel de la Classe des Sciences de l'Académie Royale de Belgique pour une dissertation intitulée "A contribution to the study of Robbins' problem"
- 2008 - 2011: Post-doctoral Grant from the Belgian National Fund for Scientific Research as Chargé de Recherche FNRS

- 2001: Ruth and Joe Gani prize in Probability.

5.4 Talks at conferences, seminars and workshops

2022

1. Singapore, June, Stein's method: the golden anniversary
2. Karlsruhe, Germany, April, Seminar talk: Stein operators and applications (slides)
3. Banff, Canada, April, Advances in Stein's method and its applications in Machine Learning and Optimization (online)

2021

1. London, UK, CMStatistics (online) (slides)
2. London, UK, December, RSS workshop on "Stein's Method in Computational Statistics" on Wednesday 8 December (online). Tutorial talk (slides).
3. Luxembourg, Luxembourg, Probability and Statistics Seminar
4. One world probability seminar -- invited talk

2020

1. Bernoulli-IMS One World Symposium 2020, August — online.
2. Oxford, UK, November (invited short course) — online.
3. Lille, France, December (invited seminar talk) — online.
4. Karlsruhe, Germany November (invited seminar talk). Cancelled.
5. Liège, Belgium, October, Meeting of RBSS. Cancelled.
6. Dublin, Eire, April (invited seminar talk). Cancelled.

2019

1. London, UK, ERCIM (invited speaker)
2. Manchester, UK (invited seminar talk)
3. Palermo, IT, July (session organiser and invited speaker)
4. Singapour, 12-25 Juin, Stein's method and related topics (invited speaker)

2018

1. Pisa, Italy, 14 - 16 December, CMStat (invited speaker)
2. Macau, China, 8-11 December, Workshop on Stein's method and related topics (invited speaker)
3. Rennes, France, 1 Octobre, (invited seminar talk)
4. Iasi, Romania, COMPSTAT 2018 (invited speaker)
5. Vilnius, Lithuania, July 2018, Joint 2018 IMS Annual Meeting / 12th International Vilnius Conference on Probability Theory & Mathematical Statistics (invited speaker)
6. Toulouse, France, 22 may (invited seminar talk)
7. Paris, France, INRIA Mokameeting, 2 May (invited seminar talk)

2017

1. Bruxelles, October 2017, ECARES seminar (invited seminar talk)
2. Gent, May 2017, Quetelet seminar (invited seminar talk)

2016

1. Sevilla, December 2016, ERCIM
2. Leuven, November 2016 (invited seminar talk)

3. Namur, October 2016, 24th meeting of the Belgian Statistical Society (Special "advanced" session organiser, Joint PHD talk and invited talk)
4. Antwerp, June 2016, (invited seminar talk)
5. Logroño (La Rioja), June 2016, BSL2016 (invited talk)
6. Louvain la Neuve, February 2016, (invited seminar talk)

2015

1. Antwerp, October 2015, BSS Meeting (keynote speaker)
2. Liège, September 2015, SRSL (invited talk)
3. Brussels, September 2015, A path through probability in honour of F.Thomas BRUSS (invited talk)
4. Amsterdam, July 2014, European meeting of Statisticians (invited talk)
5. Singapour, May 2015, Workshop on new directions in Stein's method (invited talk)
6. Liège, May 2015, Comprehensible Seminar (seminar talk)

2014

1. Bucharest, Romania, December 2014: conference on stochastic analysis and applications (invited talk)
2. Bristol, UK, November 2014, Seminar: "A canonical approach to Stein's method"
3. Bruxelles, Belgium, August 2014, *The 7th Brussels Summer School of Mathematics*: (invited talk)
4. Missillac, France, June 2014, *International Colloquium on Stein's Method, Concentration Inequalities, and Malliavin Calculus* (invited talk)
5. Brussels, Belgium, May 2014, Workshop on *Advances in Directional Statistics* (invited talk)
6. Liège, Belgium, March 2014, IAP seminar (invited seminar talk)
7. UCL, Belgium, February 2014, weekly seminar (invited seminar talk)

2013

1. Nancy, France, October 2013, Workshop on Stein's method and related topics (invited talk)
2. Brussels, Belgium, October 2013, ULB maths department weekly seminar (seminar talk)
3. Leuven, Belgium, June 2013, MathSport International (contributed talk)
4. Bochum, Germany, June 2013, seminar: "Entropy, stein factors and the fourth moment phenomenon" (invited talk)

2012

1. Jerusalem, Israel, June 2012, IWAP 2012 (contributed talk)
2. Liège, Belgium, June 2012, first joint meeting of the Belgian Mathematical Society (BMS), the Royal Spanish Mathematical Society (RSME) and the Luxembourg Mathematical Society (SML) (invited talk)
3. Luxembourg-Ville, Luxembourg, May 2012, Probability Seminar (invited seminar talk)
4. Lille, France, March 2012, Séminaire mensuel de statistique-économétrie à l'Université Lille 3 - Laboratoire EQUIPPE (invited seminar talk)
5. Mainz, Germany, March 2012, 10th German Probability and Statistics Days (contributed talk)
6. Nancy, France, January 2012, Séminaire de Probabilités et Statistiques (invited seminar talk)

2011

1. Luxembourg-Ville, Luxembourg, December 2011, Probability Seminar (invited seminar talk)
2. Bruxelles, Belgium, November 2011, ULB-UCL seminar (invited seminar talk)

3. Hasselt, Belgium, October 2011, 19th annual meeting of the belgian statistical society (contributed talk)
4. Fort-Collins, Colorado, June 2011, Graybill 2011 (special invited paper).
5. Bruxelles, Belgium, April 2011, ULB-VUB seminar (seminar talk)

2010

1. London, UK, December 2010, CFE10-ERCIM 10 (contributed talk)
2. Madrid, Spain, July 2010, International Workshop on Applied Probability (contributed talk)
3. Lille, France, May 2010, Séminaire mensuel de statistique-économétrie à l'Université Lille 3 - Laboratoire EQUIPPE (invited seminar talk)
4. ORFE, Princeton, NJ, USA April 2010 (invited seminar talk)
5. Leipzig, Germany, March 2010, 9th German Open Conference on Probability and Statistics (contributed talk)
6. Lyon, France, Janvier 2010, Séminaire de probabilités, Institut Camille Jordan, Lyon 1 (invited seminar talk)

Before 2009

1. Troyes, France, June 2009, International Workshop on Sequential methodologies (contributed talk)
2. Bordeaux, France, May 2009, 45èmes Journées de Statistique (contributed talk)
3. Brussels, Belgium, May 2008, FNRS Graduate School in Statistics and Actuarial Sciences (invited talk)
4. Brussels, Belgium April 2008, Séminaire de Probabilités, ULB (seminar talk)
5. Aachen, Germany, March 2008, 8th German Open Conference on Probability and Statistics (contributed talk)
6. Antwerp, Belgium, October 18 to 20 2007, 15th Annual Meeting of the Belgian Statistical Society (contributed talk)
7. Hejnice, Czech Republic, September 2 2007, Robust and Nonparametric Statistical Inference (contributed talk)
8. Frankfurt am Maine, Germany, March 14 to 17 2006, Frankfurter Stochastic-Tage 2006, Goethe University (contributed talk)
9. Brussels, Belgium, September 12 2005, PhD-Day, Vrije Universiteit Brussel (contributed talk)
10. La Roche-en-Ardennes, Belgium, October 10 and 11 2003, 11th Annual meeting of the Belgian Statistical Society (contributed talk)

5.5 Summer/Winter school

Oxford, UK, November 2020, online short course organised by Gesine Reinert. Topic: “Stein’s method in machine learning” (3 hours)

Bonn, October 2016, invited lecturer at RTG Summer-School organized by Peter Eichelsbacher. Topic: “IT meets Stein’s method” (12 hours)

5.6 Research stays of minimum one week

1. Karlsruhe, Germany, April 2022, Invited research stay, host: Bruno Ebner
2. Manchester, UK, October 2019, Invited research stay, host: Robert Gaunt
3. Macau, China, September 2018, Invited research stay, host: Lihu Xu
4. Rennes, France, September 2018: Invited research stay, host: Guillaume Poly
5. Cambridge, UK, April 2018, Invited research stay, host: Richard Samworth
6. Paris, France, June 2017, Invited research stay, host: Benjamin Arras
7. Oxford, UK, June 2016, Invited research stay, host: Gesine Reinert
8. Luxembourg, November 2015: Invited research stay, 1 week, host: Giovanni Peccati

9. Rennes, France, May 2015: Invited research stay, host: Guillaume Poly
10. Princeton, NJ, USA, November 2014: Invited research stay, host: Marc Hallin
11. Bristol, UK, November 2014, Invited research stay, host: Olly Johnson
12. Oxford, UK, November 2014, Invited research stay, host: Gesine Reinert
13. Oxford, UK, April 2014, Invited research stay, host: Gesine Reinert
14. Luminy, France, July 2014, Workshop on Limit Theorems in Dynamics and Applications
15. Bochum, Germany, June 2013, Invited research stay, host: Christoph Thaele
16. Princeton, NJ, USA, November 2012, Invited research stay, host: Marc Hallin
17. Oxford, UK, September 2012, Invited research stay, host: Gesine Reinert
18. Princeton, NJ, USA, May 2011, Invited research stay, host: Marc Hallin
19. Zürich, CH, November 2010, Invited research stay, host: Andrew D. Barbour

5.7 Organisation of conferences and seminars

2022

- May « PhD day in Liège »
- April « Journées Math en Jeans » at ULB

2021

- Main organiser of the « Recent breakthroughs in Mathematics » afternoon of the Belgian Mathematical Society, December

2020

- “Probability seminar” at ULB, guests:
 - Bruno Ebner (KIT) in March 2020
 - Ian McKeague (Columbia) in March 2020

2019

- Invited session organiser at Palermo, Italy, 22-26 July, EMS
- Organising and scientific committee for the RBSS meeting in Lommel, Belgium

2018

- Main organiser of the « Recent breakthroughs in Mathematics » afternoon of the Belgian Mathematical Society, December
- Main organiser of MMDA “Workshop on Modern Mathematical Methods for Data Analysis”, June 4-6, Université de Liège (with Mokaplan Inria Paris)

2017

- Organisation committee of the « Journées MATH.en.JEANS » at ULiège

2016

- Amsterdam, March 2016, organising committee BeNeLuxMC 2016

2015

- Brussels, September 2015, main organiser of A path through probability in honour of F.Thomas BRUSS
- Co-organiser (with Christophe Ley and the Center for Statistics of UGent) of a “Bayesian afternoon in Ghent”, Octobre 2015.

- Main organiser of the BL-PRO15 workshop, January 29 and 30, Liège (with UR Maths of University of Luxembourg).

2013

- Member of organising committee of “International Year of Statistics in Luxembourg” (with CRP-SANTE, CEPS/INSTEAD, University of Luxembourg, STATEC, ARTEMIS and SOGETI)

2010

- Member of the organising committee of the 18th “annual meeting of the Belgian Statistical Society” in Spa, Belgium.

5.8 Other organisation

- 2015 - 2019: Organisation and (co-)financing of “séminaire de probabilité et statistique” and the “petits déjeuners de statistique” at ULiège
- 2008 - 2013: Co-founder and co-organiser of the “Brussels Summer School of Mathematics”,

6 Academic service

6.1 at ULB

- Since 2022: Membre élu du bureau de la Faculté des Sciences
- Since 2019: Elected Vice President of the Department INFORSCIENCES (re-elected 2020)
- Since 2019: Membre du comité de pilotage du bachelier en sciences mathématiques
- 2019: Academic member of “groupe de travail sur la réforme de la Formation Initiale des Enseignants”
- Since 2012: Head of the laboratory of General Mathematics at ULB’s Faculty of Medicine

6.2 at ULiège

- 2017 - 2019: Secrétaire du jury de Master Mathématique
- 2017 - 2019: Adjunct head of the Research Unit in Mathematics URMathematics at ULiège
- 2016 - 2017: Active member of the AEQES redaction committee

6.3 at national level

- Since 2022: member of the National Mathematics Committee
- 2017 - 2019: Membre du jury pour l’Examen d’Entrée en Médecine et Dentisterie (ARES); responsable matière pour les mathématiques
- 2016 - 2019: Delegate of ULiège in the jury of the FRIA (FNRS)
- Since 2016: Academic member of the “école doctorale thématique Stat Actu”

6.5 Learned societies

- 2020 - 2021: President of the Belgian Mathematical Society and President of the BMS ASBL
- 2018 - 2020: President of the Belgian Mathematical Society
- Since 2017: Elected board member of the Royal Belgian Statistical Society
- 2016 - 2018: Vice President of the Belgian Mathematical Society

6.4 Thesis pannel

1. Cécile Adam, KUL 2021, Advisor: Irène Gijbels "Flexible expectile regression and applications"
2. Josea Rasoafaraniaina, ULB 2020, Advisor: Thomas Verdebout "Preliminary test estimation in uniformly locally asymptotically normal models" (President of the jury)
3. Christine Cutting, ULB 2020, Advisor: Davy Paindaveine "Testing uniformity against rotationally symmetric alternatives on high-dimensional spheres" (President of the jury)
4. Gauthier Dierickx, VUB 2018 "A general Darling-Erdős theorem and integral test for sums of independent and identically distributed random vectors in Euclidean space"
5. Stéphanie Aerts, ULiège 2018, Advisor: Gentiane Haesbroeck (*President of the jury*) "Robust multivariate dispersion measures"
6. Amit Kumar, Indian Institute of Technology, January 2018, Advisor: Neelesh S. Upadhye "Approximations related to some distributions of $(k_1; k_2)$ -runs via Stein's method"
7. Aysun Cetinyurek Yavuz, ULg, January 2017, Advisor: Philippe Lambert "Flexible Bayesian models for interval-censored survival data" *Secretary of the jury*
8. Rémi Dendievel, ULB, October 2016, Advisor: F. Thomas Bruss "Sequential stopping under different environments of weak information"
9. Andreas Anastasiou, Oxford, UK, June 2016, Advisor: Gesine Reinert "Bounds for the normal approximation of the maximum likelihood estimator"
10. Isabelle Charlier, ULB and Université de Bordeaux, December 2015, Advisors: Davy Paindaveine and Jérôme Saracco "Conditional quantile estimation through optimal quantization"
11. Sarah Dendievel, ULB, June 2015, Advisor: Guy Latouche "Skip-Free Markov Processes: Analysis of Regular Perturbations"
12. Carine Bartholmé, ULB, May 2014, Advisor: Pierre Patie "Self-similarity and exponential functionals of Lévy processes"
13. Géraldine Laurent, ULg, May 2014, Advisor: Cédric Heuchenne "From censored to cross-sectional data: non and semiparametric new developments"
14. Vahid Nassiri, VUB, September 2013, Advisor: Ignace Loris "Robust Alternatives to Least Squares for Sparse Estimation with Applications"

6.5 Refereeing

Annales de l'Institut Henri Poincaré; Annals of Applied Probability; Annals of the Institute of Statistical Mathematics; Annals of Probability; Bernoulli; Brazilian Journal of Probability and Statistics; Bulletin de la Société Royale des Sciences de Liège; Bulletin of the Belgian Mathematical Society; Computational Statistics & Data Analysis; Electronic Journal of Probability; Electronic Journal of Statistics; Entropy; ESAIM: Probability and Statistics; Extremes; IEEE Transactions on Information Theory; Journal of Applied Probability; Journal of Econometrics; Journal of Multivariate Analysis; Journal of Quantitative Analysis in Sports; Journal of Theoretical Probability; Kybernetika; Methodology and Computing in Applied Probability; Metron International Journal of Statistics; Probability in the Engineering and Informational Sciences; Ramamujan journal of Mathematics; Science Asia; Springer Briefs; Statistics and Probability Letters; Statistica Sinica; Studia Math; Stochastic Processes and their Applications

6.6 Editorial responsibilities

Associate editor for Probability of the Bulletin of the Belgian Mathematical Society — Simon Stevin

7 Outreach

7.1 MATH.en.JEANS — MEJ

Since 2015 I am coordinator of the MATH.en.JEANS — MEJ association (Prix Wernaers 2015) in Belgium. This association, of which a complete and detailed description is given at the address

www.mathenjeans.be, organises research projects in secondary schools at all levels (from the first to the last year) throughout the entire Fédération Wallonnie Bruxelles.

More specifically, we

- Coordinate weekly research sessions animated by University researchers and secondary school teachers for secondary school students
- Organise and dispense introductions to programming for young students (Python and Geogebra)
- Organise general audience talks
- Organise conferences (500 students in Liège in 2017, 600 in Louvain-La-Neuve in 2019)
- Coordinate the travels of students to and from their school to the conferences (Paris in 2015, Liège in 2016, Metz in 2017, Louvain-La-Neuve in 2018, Luxembourg in 2019)

7.2 Brussels Summer School of Mathematics

In 2008 I co-founded the “Brussels Summer School of Mathematics” <http://bssm.ulb.ac.be/> (Prix Wernaers 2012). This yearly conference is still going strong to this date and is, in continuation with the tradition started 10 years ago, still animated by motivated by PhD students and PostDocs.

7.3 Calendar

2022

1. May: PhD day in Liège (co-main organiser) <http://dwispc8.vub.ac.be/nieuwBMS/index.php?id=phd-day-2022>
2. April: Sole organiser of the Congrès MATH.en.JEANS à l'ULB <https://www.mathenjeans.be/congres2022>

2021

1. From September 2021 to May 2022: research workshops in secondary schools
2. December: Sole organiser of the Recent breakthroughs in Mathematics event for the BMS (online <http://dwispc8.vub.ac.be/nieuwBMS/index.php?id=recent-breakthroughs-and-general-assembly-2021>)
3. November: Maison de la culture, Arlon, conference "Formule de l'amour"
4. Octobre: Luxembourg Science Center, conference "Comme par hasart" <https://luxstat.lu/2021/10/11/comme-par-hasart/>
5. May: tournage de la vidéo <https://www.youtube.com/watch?v=dLGPtvkB4ww>

2020

1. May: MEJ congres in Luxembourg — cancelled
2. February: two talks during "après midi inédit" at ULB
3. February: invited talk at Collège Saint François-Xavier 1, Verviers
4. February: discussion of maths careers and studies at ISND, Anderlecht

2019

1. 13 novembre: organisation of MEJ afternoon at ULB
2. 24 octobre: co-organisaion of the “Bourgain day” at the Academy
3. 23 octobre: Python afternoon at ULB for MEJ
4. Since September: animation of MEJ research group at Lycée Français Jean Monnet, Uccle
5. August: stand at annual congres of the SBPMeF
6. May: MEJ Congres in Louvain-La-Neuve

2018

1. May 25: Gent, PhD Day (scientific committee): <http://bms.ulb.ac.be/phdday>
2. April: coordination of transport from Belgium to Nancy (22-24 avril) for MEJ congress
3. April: ULiège, invited talk to exchange students from Romanian secondary school
4. February: ULiège, invited talk at AMULg seminar
5. January: ULiège, organisation and Geogebra tutoring for MEJ

2017

1. November: invited talk at the "maths" colloquium in HE Francisco Ferrer
2. May: invited talk at Collège Don Bosco Woluwé
3. April: invited talk at ISMA, Arlon
4. April: organiser of the Congrès MATH.en.JEANS (500 secondary school students in Liège University over 3 days)
5. May: co-organiser of BMS day at "the math conference" in Brussels
6. February: invited talk at the "day of statistics" at the Aquarium in ULiège
7. January: talk at the "journée d'accueil du secondaire" in ULiège Math Department

2016

1. May: invited talk at Athénée Thil Lorrain, Verviers
2. May: Metz, Colloque Maths en Jeans
3. April: organiser of MATH.en.JEANS colloquium at ULiège Math Department
4. January: talk at the "journée d'accueil du secondaire" in ULiège Math Department

2015

1. January: talk at the "journée d'accueil du secondaire" in ULiège Math Department
2. October: invited talk at the "Journées Catalan" at the Aquarium in Liège
3. March: ENS Paris, Colloque Maths en Jeans
4. January: talk at the "journée d'accueil du secondaire" in ULiège Math Department

7.4 Funding and prizes

- 2019: Financement du fonds des 10KM de l'ULB pour l'XMath (3500 euros)
- 2018: Financement de la FWB pour MATH.en.JEANS (20K euros)
- 2017: Financement de la FWB pour MATH.en.JEANS (20K euros)
- 2017: Financement de la Région Wallonne (DGO6) pour MATH.en.JEANS (45K euros)
- 2015: Wernaers Prize for the dissemination of knowledge of the Belgian National Fund for Scientific Research for the organization of Maths.en.Jeans in Liège
- 2012: Co-recipient of the Wernaers Prize for the dissemination of knowledge of the Belgian National Fund for Scientific Research for the creation and organization of the Brussels Summer School of Mathematics.