Ludovic Tangpi

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Main research interests

Risk management
Backward stochastic differential equations
Stochastic control and applications to mathematical finance.

Academic positions

- *Assistant professor of operations research and financial engineering, Princeton University* *Sept. 2018 –*
- *Postdoctoral research fellow (with W. Schachermayer), University of Vienna* *May 2015 – Aug. 2018*
- *Research assistant (with M. Kupper), University of Konstanz* *Jul. 2013 – Apr. 2015.*

Visiting positions

- Research member, IMSI, Nov-Dec 2021
- Professeur invité, Université de Toulon, July 2019.

Education

- Humboldt-Universität zu Berlin and Universität Konstanz, Germany
  - *Ph.D. in Mathematics* *Oct. 2011 – Jul. 2015*

    Advisor: Prof. Dr. Michael Kupper
    Grade: *Summa Cum Laude* (highest distinction)
    Jury: Prof. Dr. Robert Denk; Prof. Dr. Michael Kupper and Prof. Dr. H. Mete Soner.
- Stellenbosch University and African Institute for Mathematical Sciences, South Africa
  - *Master by research dissertation* *Jul. 2010 – Jun. 2011*

    Grade: *Cum Laude* (highest distinction)
  - *Postgraduate Diploma in Mathematical Sciences* *Aug. 2009 – Jun. 2010*

    Grade: Cum Laude (highest distinction).

Awards and distinctions

- NSF grant DMS-2005832, 2020-2023 (PI)
- University of Konstanz prize of the 2015 best doctoral thesis
- Scholarship of the Berlin Mathematical School (Ph.D.), 2011
- Master's and Postgraduate diploma Scholarships of the African Institute for Mathematical Sciences, 2009 & 2010
- Victor Rothschild Award for outstanding achievement, AIMS, 2010.
- Plenary lectures
  - Advances in Mathematical Finance and Optimal Transport. Pisa, Jun. 2021;
  - The 25^{th} CAARMS. Princeton, Jul. 2019;

– Conference on model uncertainty and robust finance, University of Milano (Italy) Mar. 2018;

Publications and preprints

- **Publications and accepted manuscripts**
  - *Representation of increasing convex functionals with countably additive measures*, with P. Cheridito and M. Kupper. Forthcoming in Studia Math.
  - *Quadratic transportation inequalities for SDEs with measurable drifts*, with K. Bahlali and S. Mouchtabih. Forthcoming in Proceedings of the A.M.S.
  - *Functional inequalities for forward and backward diffusions*, with D. Bartl. Electronic Journal of Probability, 25(94), 1-22, 2020
  - *On the dynamic representation of some time-inconsistent risk measures in a Brownian filtration*, with J. Backhoff. Mathematics and Financial Economics 14, 433–460, 2020
  - *Non-exponential Sanov and Schilder theorems on Wiener space: BSDEs, Schrödinger problems and control*, with J. Backhoff and D. Lacker. Annals of Applied Probability 30(3), 1321-1367, 2020
  - *Strong solutions of some one-dimensional SDEs with random and unbounded drifts*, with O. Menoukeu-Pamen. SIAM Journal on Mathematical Analysis 51(5), 4105-4141, 2019
  - *Duality for pathwise superhedging in continuous time*, with D. Bartl, D.J. Prömel and M. Kupper. Finance and Stochastics 23(3), 697-728, 2019
  - *Pathwise uniqueness of non-uniformly elliptic SDEs with rough coefficients*, with O. Menoukeu-Pamen and Y. Ouknine. Journal of Theoretical Probability 32(4), 1892-1908, 2019
  - *Theoretical and empirical analysis of trading activity*, with M. Pohl, A. Ristig and W. Schachermayer. Mathematical Programming 181, 405–434, 2020
  - *Computational aspects of robust optimized certainty equivalents and option pricing*, with D. Bartl and S. Drapeau. Mathematical Finance 30(1), 260-286, 2020
  - *Efficient hedging under ambiguity in continuous time.* Probability, Uncertainty and Quantitative Risk 5(6), 2020.
  - *Concentration of dynamic risk measures in a Brownian filtration.* Stochastic processes and their Applications 129(5), 1477-1491. 2019
  - *Multidimensional Markovian FBSDEs with superquadratic growth*, with M. Kupper and P. Luo. Stochastic Processes and their Applications; 129, 902-923 (2019)
  - *The amazing power of dimensional analysis: Quantifying market impact*, with M. Pohl, A. Ristig and W. Schachermayer. Market Microstructure and Liquidity; 03 (03&04), 1850004 (2017)
  - *Duality formulas for robust pricing and hedging in discrete time*, with P. Cheridito and M. Kupper. SIAM Journal on Financial Mathematics 8(1), 738-765. 2017.
  - *Solvability of coupled FBSDEs with diagonaly quadratic generators*, with P. Luo. Stochastics and Dynamics 17(6), 1750043. 2017
  - *Duality for increasing convex functionals with countably many marginal constraints*, with D. Bartl, P. Cheridito and M. Kupper. Banach Journal of Mathematical Analysis 11(1) 72-89, 2017
  - *Portfolio Optimization under Nonlinear Utility*, with G. Heyne and M. Kupper. International Journal of Theoretical and Applied Finance 19 (5), 1650029. 2016
  - *Minimal Supersolutions of Convex BSDEs under Constraints*, with G. Heyne, M. Kupper and C. Mainberger. ESAIM Probability and Statistics 20, pp 178-195. 2016
  - *Dual Representation of Minimal Supersolutions of Convex BSDEs*, with S. Drapeau, M. Kupper and E. Rosazza Gianin. Annales de l'Institut Henry Poincaré Probabilités et Statistiques 52(2), pp. 868-887. 2016.

Talks at scientific meetings

- **Invited talks**
  - 2021: Summer school on Distributed control, CIRM-Luminy (FR); 6th Berlin Mathematical Finance Workshop for Young Researchers (Germany); SIAM annual meeting, WA (USA); SIAM conference on Financial Engineering, Philadelphia (USA); Applications of Stochastic Control to Finance and Economics, Banff (Canada); University of South Florida probability seminar (virtual); University of Leeds math finance seminar (Virtual); University of California Santa Barbara probability seminar (virtual); Berlin Probability Colloquium (virtual); Joint Mathematical Meeting, (virtual)
  - 2020 (all virtual): UChicago CAMP seminar; Bachelier Finance Society One World seminar series; Random matrix and probability theory seminar, CMSA- Harvard University; Probability and Statistics seminar, University of Cadi Ayyad, Marrakech
  - 2019: Math Finance seminar, University of Southern California (USA); 4th Eastern Conference in Math Finance, Boston (USA); Advances in Stochastic Analysis for Handling Risks in Finance and Insurance, CIRM-Luminy (France); Math Finance seminar, Columbia University, NYC (USA); Math colloquim, Université de Toulon, (France); International Congress on Actuarial Science and Quantitative Finance, Manizales (Colombia); 25^{th} CAARMS conference (USA); SIAM conference on Financial Engineering, Toronto (Canada); Stochastic analysis seminar, Rutgers University (USA); Stochastic analysis seminar, Nanyang Technological University (Singapore); Berlin-Princeton-Singapore Workshop on Mathematical finance (Singapore).
  - 2018: Financial/Actuarial math seminar, University of Michigan, Ann Abor (USA); 11^{th} Oxford-Princeton Workshop on Financial Math & Stochastic Analysis, Princeton (USA); Workshop Dynamic and uncertainty modeling, Wolfgangsee (Austria); Stochastic analysis and its applications, BIRS/CMO-Oaxaca (Mexico); ORFE colloquim Princeton University (USA).
  - 2017: Mathematical sciences colloquim Worcester Polytechnic Institute (USA); Workshop on Advances in Stochastic Analysis for Risk Modeling, CIRM-Luminy (France); Stochastic optimal controls and applications; AIMS-Ghana (Ghana); Workshop on BSDEs and SPDEs, University of Edinburgh (UK); Young Researchers Workshop on Robust Finance; ETH Zürich (Swithzerland); Oberwolfach Workshop: Mathematics of Quantitative Finance; MFO (Germany)
  - 2016: IMS Finance, Insurance, Probability and Statistics Conference; University of Edmonton (Canada); Colloquium talk, Department of Mathematics and Statistics University of Konstanz (Germany); Research seminar Shanghai Advanced Institute of Finance (China)
  - 2015: Stochastic analysis and stochastic finance seminar Technical University Berlin (Germany); ZIF jour fixe seminar, University of Bielefeld (Germany)
  - 2014: Stochastic Analysis and Stochastic Finance Seminar; TU Berlin (Germany); Workshop on Robust Techniques in Financial Economics; ETH Zürich (Swithzerland)
  - 2012: Research seminar; Università degli Studi di Milano-Bicocca; Milan (Italy).
- **Selected contributed talks**
  - Computational aspects of robust optimized certainty equivalent. International conference Mathematics in Finance, Kruger National Park, SA: Aug. 2017
  - Fundamental Theorem of Asset Pricing without Reference Measure. Conference Stochastics of Environmental and Financial Economics. Norvegian Center of Advanced Study; Norway: Sept. 2014
  - Fundamental Theorem of Asset Pricing without Reference Measure. 8^{th} World Congress of the Bachelier Finance Society. Brussels, Belgium: Jun. 2014
  - Robust Duality without Reference Measure. 7^{th} European Summer School in Financial Mathematics. University of Oxford; UK: Sept. 2014
  - Dual Representation of Minimal Supersolutions of Convex BSDEs. German - Polish Joint Meeting on Probability and Statistics; Torùn, Poland: Jun. 2013.