

Louis Bachelier Prize 2016

The Prize Committee has chosen Damir Filipovic as the recipient of the 2016 **Louis Bachelier Prize**.

Damir Filipovic is an internationally recognized expert in mathematical finance and stochastic modeling in finance. Educated at ETH Zurich, where he obtained his PhD in Mathematics in 2000, he has held academic positions in Princeton, Vienna and Munich and is currently Professor at the Swiss Federal Institute of Technology (EPFL, Lausanne) where he holds the *Swissquote Chair of Quantitative Finance* since 2011.

Damir Filipovic's research, centered on stochastic processes and their applications in finance, impresses through the breadth of topics covered and the depth of results obtained on each topic. Filipovic's research spans theoretical topics in probability theory and mathematical finance as well as applications in quantitative risk management.

Filipovic's early work explored the 'consistency' between dynamic interest rate models and parametric interpolation methods used for yield curve construction, a problem formulated by T. Björk and B.J. Christensen. Formulating this consistency problem as a stochastic invariance problem for a class of infinite dimensional stochastic differential equations, Filipovic provided a geometric solution using tools from infinite-dimensional stochastic analysis.

Filipovic has also made notable contributions to the theory of affine processes, a class of stochastic processes with tractable analytical properties introduced by Darrell Duffie and Rui Kan. With Duffie and Schachermayer, Filipovic obtained a complete characterization of this class of processes and provided a unifying framework which clarified the link with Ornstein-Uhlenbeck processes and continuous-state branching processes with immigration.

Filipovic has also made notable contributions to quantitative risk management in finance and insurance. Working as a Scientific Consultant to the Swiss insurance regulator (Swiss Federal Office of Insurance), he participated in the development of the Swiss Solvency test, a key element of the regulatory framework of insurance companies, and co-authored the white paper on Swiss solvency regulation. His more recent work is related to regulation and systemic risk, topics which pose significant challenges for mathematical modelling, covering issues as the design of central clearing facilities for over-the-counter derivatives and the dynamics of interbank lending rates.

Filipovic's foray into each of these areas has been characterized by a careful and rigorous study, leading to novel mathematical formulations which clarify the structure of the problem. His work offers fine examples of what rigorous mathematical analysis can bring to financial modelling.