CURRICULUM VITAE

Personal Data

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Education

June 1997 - November 2000	Humboldt University Berlin Graduate Studies in Mathematics; November 2000: Ph.D. in *Mathematics* (*Summa Cum Laude*) Supervisor: Hans Föllmer Examiners: Hans-Otto Georgii, José Scheinkman, Martin Schweizer
October 1991 - May 1997	University of Bielefeld Undergraduate Studies in Mathematical Economics; May 1997: Diploma in *Mathematical Economics* (*With Distinction*) Supervisor: Joachim Rosenmüller Examiner: Robert Simon December 1993: Pre-Diploma in *Mathematical Economics*

Academic Appointments

July 2007 - present	Deutsche Bank Professor of Financial Mathematics Department of Mathematics Humboldt University Berlin
July 2007 - present	Scientific Director Deutsche Bank Quantitative Products Laboratory Humboldt University Berlin
Jan. 2005 - June 2007	Assistant Professor of Mathematical Finance & Mathematical Economics Department of Mathematics University of British Columbia
Nov. 2006 - Dec. 2006	Visiting Professor Institute of Mathematical Economics Bielefeld University
Jan. 2005 - Dec. 2005	Research Fellow DFG-Research Center *Mathematics for Key Technologies;* Technical University Berlin
Sep. 2002 - Dec. 2004	Research Associate DFG-Research Center *Mathematics for Key Technologies*; Humboldt University Berlin
April 2004 - June 2004	Visiting Research Fellow *Institute for Mathematics and Its Applications*; University of Minnesota
Sep. 2003 - Oct. 2003	Visiting Assistant Professor *Department of Operations Research and Financial Engineering*; Princeton University
Sep. 2001 - Aug. 2002	Visiting Research Fellow *Bendheim Center for Finance* and *Department of Economics*; Princeton University
April 2001 - June 2001	Visiting Research Fellow *Bendheim Center for Finance* and *Department of Economics*; Princeton University

June 1997 - Aug. 2001	Research Associate National Research Center *Quantification and Simulation of Economic Processes*, Humboldt University Berlin

Short Term Research Visits

May 2006	*Institute for Advanced Studies,* Princeton (1 week)
June 2005	*Department of Operations Research and Financial Engineering,* Princeton University (1 week)
November 2004	*GREQAM, Groupement de Recherche en Economie Quantitative,* Marseille (2 weeks)
June 2004	*Department of Operations Research and Financial Engineering,* Princeton University (1 week)
March 2004	*GREQAM, Groupement de Recherche en Economie Quantitative,* Marseille (1 week)

Publications in Refereed Journals

- "Queuing, social interactions and the microstructure of financial markets;" *Macroeconomic Dynamics*, to appear (with C. Rothe).
- "On the spanning property of risk bonds priced by equilibrium;" *Mathematics of Operations Research*, to appear (with M. Müller).
- "On non-ergodic asset prices;" *Economic Theory*, to appear (with J. Wenzelburger).
- "Stochastic cascades, credit contagion and large portfolio losses;" *Journal of Economic Behavior and Organization*, 63, 25-54 (2007).
- "A limit theorem for financial markets with inert investors;" *Mathematics of Operations Research*, 31, 789-810 (2006) (with E. Bayraktar and R. Sircar).
- "Equilibria in systems of social interactions;" *Journal of Economic Theory*, 130, 44-77 (2006) (with J. Scheinkman).
- "Rational expectations equilibria of economies with local interactions;" *Journal of Economic Theory*, 127, 74-116 (2006) (with A. Bisin and O. Özgür).

- "A simple model of trading climate risk;" *Vierteljahrshefte zur Wirtschaftsforschung*, 74 (2), 175–195 (2005) (with S. Chaumont, P. Imkeller, and M. Müller).
- "Equilibria in financial markets with heterogeneous agents: A probabilistic perspective;" *Journal of Mathematical Economics*, 41 (1-2), 123-155 (2005) (with H. Föllmer and A. Kirman).
- "Stationary equilibria in discounted stochastic games with weakly interacting players;" *Games and Economic Behavior*, 52, 83-108 (2005).
- "Financial price fluctuations in a stock market model with many interacting agents;" *Economic Theory*, 25, 917-932 (2005).
- "Stability of linear stochastic difference equations in strategically controlled random environments;" *Advances in Applied Probability*, 35, 961-981 (2003).
- "Asymptotics of locally interacting Markov chains with global signals;" *Advances in Applied Probability*, 34, 1-25 (2002).
- "Convergence of locally and globally interacting Markov chains;" *Stochastic Processes and Their Applications*, 96, 99-121 (2001) (with H. Föllmer)
- "The stochastic equation $Y_{t+1} = A_t Y_t + B_t$ with non-stationary coefficients;" *Journal of Applied Probability*, 38, 80-95 (2001).

Refereed Publications in Books

- "Queuing theoretic approaches to financial price fluctuations;" *Handbook of Financial Engineering* (ed. V. Linetsky and J. Birge), to appear (with E. Bayraktar and R. Sircar).
- "Ergodicity and non-ergodicity in economics;" *The New Palgrave Dictionary of Economics* (ed. L. Blume and S. Durlauf), to appear.

Books and Book Reviews

- "Asymptotics of locally and globally interacting Markov chains arising in microstructure models of financial markets;" Shaker-Verlag, Aachen (2001).
- "Minority Games: Interacting Agents in Financial Markets" (by D. Challet, M. Marsili and Y.C. Zhang) *Quantitative Finance* 7, 17-18 (2007).

Working Paper and Work in Progress

- "Dynamic systems of social interactions;" submitted to *Journal of Mathematical Economics.*
- "A limit theorem for systems of social interactions;" submitted to *Journal of Mathematical Economics* (with J. Scheinkman).
- "Searching for identity;" in preparation (with A. Kirman and M. Teschl).

Talks and Invited Seminar Presentations

2007
- Cornell University; School of Operations Research and Information Engineering.
- 6^{th} International Congress on Industrial and Applied Mathematics; Zurich (invited).

2006
- Bayreuth University; Department of Mathematics.
- Imperial College London; Department of Mathematics.
- Bielefeld University; Department of Economics (Colloquium).
- Yale University; Department of Economics.
- *International Conference on Mathematical Finance and Related Topics*; Kanazawa (invited).
- *4^{th} World Congress of the Bachelier Finance Society*; Tokyo.
- Society for Economic Dynamics Annual Meeting; Vancouver.
- *MITACS Annual Project Meeting*; University of Toronto (invited).
- CMS Summer 2006 Meeting; University of Calgary (invited).
- Workshop *Optimization problems in financial economics*; Banff (invited).
- Princeton University; Department of Operations Research & Financial Engineering.
- *PIMS-MITACS Math Finance Seminar*; University of British Columbia.
- Center for Nonlinear Dynamics in Economics and Finance; Amsterdam University.
- Göttingen University; Department of Business Administration.

2005
- Bielefeld University; Institute for Mathematical Economics (invited).
- Technical University Berlin; Stochastic Analysis and Mathematical Finance Seminar.

- Canada-Chile Meeting on the Mathematics of Economic Geography and Natural Resource Management; Banff (invited).
- IAM Seminar Series; *The Institute of Applied Mathematics.*
- *MITACS Annual Project Meeting*; McMaster University (invited).
- Workshop *Credit Risk*; Statistical and Applied Mathematical Sciences Institute (invited).
- *The 2005 NSF/CEME Mathematical Economics Conference*; Berkeley.
- Workshop *Microscopic Stochastic Dynamics in Economics*; Bielefeld (invited).
- Workshop *on Stochastic Modelling in Mathematical Finance*; Montreal (invited).
- University of Bonn; Department of Economics.
- *14th European Workshop on General Equilibrium Theory*; University of Zürich.
- *VI-th Annual MITACS Meeting*; Calgary (invited).
- *Aggregation and Disaggregation Workshop*; Banff (invited).
- Mathematical Colloquium; University of Edmonton.
- *Probability Seminar*; University of British Columbia.
- *PIMS-MITACS Math Finance Seminar*; University of British Columbia.
- *CREDS 2005*; Workshop on Complexity and Randomness in Economic Dynamical Systems; Bielefeld (invited).

2004

- Humboldt University Berlin; Department of Mathematics.
- Ludwig-Maximilians-University Munich; Department of Mathematics.
- University of Bonn; Department of Economics.
- Workshop *Interactions and Markets*; Pisa (invited).
- *Interacting Agents Workshop*; Warwick (invited).
- *54th Annual European Meeting of the Econometric Society*; Madrid.
- University of Leipzig, Department of Mathematics.
- *3rd World Congress of the Bachelier Finance Society*; Chicago.
- *2nd World Congress of the Game Theory Society*; Marseille.
- *IX-th Workshop on Economies with Heterogenous Interacting Agents*; Kyoto.
- University of Minnesota; Department of Economics.

- University of Minnesota; Institute for Mathematics and Its Applications.
- University of Bielefeld; Institute of Mathematical Economics.
- University of British Columbia; Department of Mathematics.
- University of Zürich; *NCCR FINRISK Seminar.*

2003
- University of Kiel; Department of Economics.
- Columbia University; *Probability Seminar Series.*
- Princeton University; Department of Operations Research and Financial Engineering.
- *Blaise Pascal International Conference on Financial Modelling*; Paris.
- Humboldt University; Department of Mathematics.
- *Bachelier Finance Seminar*; Paris.
- Seminar *Comportements collectifs et interactions sociales*; EHSS Paris.
- *VIII-th Workshop on Economies with Heterogenous Interacting Agents*; Kiel.
- *Complexity*; Aix-en-Provence.
- *Spring Meeting of Young Economists*; Leuven.

2002
- Humboldt University; Department of Mathematics.
- *Spring Meeting of Young Economists*; Paris.
- *Workshop on Modelling Social Interactions*; Paris (invited).
- *American Mathematical Society Sectional Meeting*; Ann Arbor (invited).

2001
- Princeton University; *Otto A. Hack '03 Finance Seminar.*
- *V-th International Conference in Economics*; Ankara.
- University of Jyväskylä: Department of Physics.
- Seminar *Comportements collectifs et interactions sociales*; EHSS Paris.

2000
- *Workshop on Mathematical Finance*; Berlin.
- University of Frankfurt; Department of Mathematics.
- Conference on *Applications of Physics in Financial Analysis II*; Liège.

1999
- University of Bielefeld; Department of Physics.

Participation in Workshops and Conferences

- *Workshop on Rock Mechanics and Logistics in Mining*: CMM, Santiago de Chile (2007)
- *Workshop on Quantitative Finance: Developments, Applications & Problems*; Isaac Newton Institute, Cambridge (2005)
- *Workshop de l'ACI Systèmes complexes en SHS*; Marseille (2004)
- *Risk Management and Model Specifications Issues in Finance*; Minnesota (2004)
- *Financial Data Analysis and Applications*; Minneapolis (2004)
- *2nd Princeton Workshop on the Future of the US Power Markets*; Princeton (2003)
- *Spring School on Stochastic Delay Differential Equations*; Berlin (2003)
- *XIV-th Fog Meeting*; Institute of Mathematical Economics; University of Bielefeld (2002)
- *School on the Mathematical Modelling of Financial Markets and Econophysics;* Siena (2000)
- *Workshop of Mathematical Finance*; Vienna (1999)
- *Conference on Economic Models of Evolutionary Dynamics and Interacting Agents;* Trieste (1999)
- *International School on the Mathematics of Economics*; Trieste (1999)
- *Workshop Mathematical Finance;* Berlin (1998)
- *Seminar Finance and Mathematical Economics*; Oberwolfach (1998)
- *Conference on Applications of Physics in Financial Analysis I;* Dublin (1999)

Teaching Experience

Spring 2007	Math 606: Advanced Topics in Mathematical Finance (Lecture; UBC). Math 303: Introduction to Stochastic Processes (Lecture; UBC).
Fall 2006	Math 605: Introduction to Mathematical Finance (Lecture; UBC). The Mathematical Modelling of Social Interactions (Lecture Series; *Institute of Mathematical Economics;* Bielefeld University).
Spring 2006	Math 303: Introduction to Stochastic Processes (Lecture; UBC). Math 302: Introduction to Probability (Lecture; UBC).

Fall 2005	Math 605: Introduction to Mathematical Finance (Lecture; UBC).
Spring 2005	Math 302: Introduction to Probability. (Lecture; UBC).
Fall 2003	Microstructure Models of Financial Markets (Lecture; HU).
	The Mathematical Modelling of Market Microstructure (Lecture Series; *Department of Operations Research and Financial Engineering;* Princeton University.)
Spring 2003	Non-Cooperative Game Theory and Stochastic Games (Lecture; HU).
	Credit Risk (Seminar; HU).
Fall 2002	Probabilistic Interaction Models and their Applications in Economics (Lecture; HU).

Honors and Awards

- Fellowship from the *German Academic Exchange Service* for a one year research visit to the *Bendheim Center for Finance* and the *Department of Economics*, respectively, at Princeton University.
- Various travel grants to attend international conferences including the 3rd World Congress of the Bachelier Finance Society (Chicago, USA), the IX-th Workshop on Economies with Heterogenous Interacting Agents (Kyoto, Japan), and the workshop on Quantitative Finance: Developments, Applications & Problems (Cambridge, UK).
- *ISE Best Finance Paper Award 2001* for the paper "Financial price fluctuations in a stock market model with many interacting agents".

Fundraising

- NSERC Research Grant; *The Microstructure of Financial and Insurance Markets.*
- Alexander-from-Humboldt Foundation; Transcoop Program Humboldt University Berlin - UBC Vancouver; principal investigator.
- Head of the MITACS project *Climate Risk, Securitization, and the Microstructure of Insurance Markets.*
- Head of the international cooperative research group *The Economics and Finance of Climate Risk and Natural Resources.*
- BC-Hydro-MITACS program on *Investigation of the Benefits of Resource Diversification with an Energy Portfolio Dominated by Hydro.*

Organized Workshops and Summer Schools

- Summer School Mathematical Modelling of Climate and Energy Risk; Banff (May 2007).
- Workshop Modelling of Climate and Energy Risk; Banff (May 2007).
- Workshop on Securitization of Weather and Climate Risk; Humboldt University (August 2006).
- Summer School Frontiers in Mathematics and Economics; UBC (July 2006).
- Berlin Workshop on Mathematical Finance for Young Researchers - Modelling, Measuring and Managing Financial Risk; Humboldt University (January 2004).

Supervision of Highly Qualified Personnel

Postdoctoral Fellows:	Dr. Trian Pirvu:	July 2006 - June 2007 (with U. Haussmann)
	Dr. Matthias Müller:	July 2005 - June 06
Doctoral Students:	Santiago Moreno:	2005 - present (with I. Ekeland)
Master and Diploma Students:	Christian Rothe, Bruno L'Esperance, Zeliang Lu, Yifan Tian, Zhiqing Wang.	

Referee Activities

American Economic Review, Annals of Applied Probability, Applied Mathematical Finance, Econometrica, Economic Theory, European Economic Review, Finance and Stochastics, Information Sciences, International Journal of Theoretical and Applied Finance, Journal of Applied Probability, Journal of Economic Behavior and Organization, Journal of Economic Dynamics and Control, Journal of Mathematical Economics, Macroeconomic Dynamics, Mathematical Finance.

Professional Memberships

American Economic Association, Bachelier Finance Society, Bernoulli Society, Econometric Society, Game Theory Society, Society for Industrial and Applied Mathematics, Society for the Advancement of Economic Theory.