HUMBOLDT-UNIVERSITÄT ZU BERLIN

Institut für Mathematik

Humboldt Distinguished Lecture Series in Applied Mathematics

Paul Glasserman

Topics in Financial Stability and Systemic Risk

This lecture series is intended for graduate students in mathematics and economics. This year it is given by a pioneer in stochastic optimization and renowned financial mathematician. The talks take place

May 19th; 16:00 - 17:00 and 17:30 - 18:30;
Erwin Schrödinger Zentrum; Room 0.307

May 20th; 16:00 - 17:00 and 17:30 - 18:30;
Erwin Schrödinger Zentrum; Room 0.307

These lectures will cover problems of mathematical modeling that arise from efforts to enhance the stability of the financial system. The first two lectures will address contingent capital for banks in the form of debt that converts to equity when a bank nears financial distress. Contingent capital offers a promising potential solution to the problem of banks that are too big to fail, but the design of these securities and the trigger for conversion turns out to be surprisingly delicate and raises interesting questions of broader scope. Next, we will consider the design of risk weights for regulatory capital requirements. We observe than in a simple portfolio selection model, ideal risk weights should be proportional to asset profitability rather than asset risk, and we analyze an adaptive implementation in which risk weights are adjusted in response to changes in bank portfolios. Finally, we consider the problem of gauging the magnitude of network effects on contagion and loss amplification in interbank networks. We develop bounds on the potential magnitude of network effects that do not rely on detailed knowledge of network topology.

The lecture series is accompanied by the **First Berlin-Singapore Workshop on Quantitative Finance and Financial Risk** (21-24 May). The participation in both events is free; for further information, course material and registration, please visit

www.qfl-berlin.com

Organizer:

Ulrich Horst
Chair of Applied Financial Mathematics
Humboldt-Universität zu Berlin

email: horst@math.hu-berlin.de

In collaboration with the *Berlin Mathematical School*, the DFG research Center MATHEON, the SFB 649 "Economic Risk" and the *Quantitative Finance Laboratory.*

Paul Glasserman is the Jack R. Anderson Professor of Business at Columbia Business School, where he is research director of the Program on Financial Studies. Since 2011, he has also served as a consultant to the Office of Financial Research, a new agency within the U.S. Treasury department created to collect data and undertake research and analysis to enhance financial stability and promote best practices in risk management. His research recognitions include the INFORMS Lanchester Prize, an IMS Medallion from the Institute of Mathematical Statistics, and the Erlang Prize in Applied Probability. He is also a recipient of Risk magazine's Quant of the Year Award.

QFL BERLIN

Berlin Mathematical School

SFB 649 ÖKONOMISCHES RISIKO

DFG-Forschungszentrum MATHEON
Mathematik für Schlüsseltechnologien