

The Working Group on Risk, with the support of the group BFA (SFdS) and of the Institute of Actuaries (IA), has the pleasure to invite you to the Seminar by:

Prof. Henrik HULT
Stockholm University (Sweden)

Wednesday, October 30, 2013 at 12:30 pm
EEE - ESSEC La Défense – room 220

**Markov chain Monte Carlo for computing rare-event probabilities
for heavy-tailed random sums**

Random sums appear frequently in non-life insurance as models for the annual claim amount. Quantitative risk assessment requires the computation of loss probabilities for random sums. Asymptotic approximations give crude estimates of loss probabilities for extreme losses. For more accurate evaluation one often need to resort to simulation. In this talk we will discuss a new method for computing tail probabilities for heavy-tailed random sums based on a Markov chain Monte Carlo (MCMC) algorithm. The conditional distribution of the underlying process given that the rare event occurs has the probability of the rare event as its normalizing constant. Using the MCMC methodology a Markov chain is simulated, with that conditional distribution as its invariant distribution, and information about the normalizing constant is extracted from its trajectory. An unbiased estimator of the reciprocal probability is constructed whose normalized variance vanishes asymptotically. The algorithm is extended to random sums and its performance is illustrated numerically and compared to existing importance sampling algorithms. This talk is based on joint work with Thorbjörn Gudmundsson.



YOU HAVE THE ANSWER

*For any information, please contact
Frédérique JEAN-LOUIS
(01 34 43 32 49 / jeanlouis@essec.fr)*

<http://crear.essec.edu/working-group-on-risk/meeting-schedule-2013-2014>

Prof. Henrik HULT

Stockholm University (Sweden)

Prof. Henrik Hult, PhD in Mathematical Statistics from KTH, has been working in the field of financial and insurance mathematics at University of Copenhagen, Cornell University and Brown University from 2003 to 2008. He is Associate Professor at Mathematical Statistics at KTH since then. His research focuses on stochastic processes, Monte Carlo simulation, mathematical finance, and insurance.

