Douglas W. Vestal

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Educational Record

- **Ph.D. Candidate**, Statistics and Applied Probability — Expected May 2008
  Emphasis in Financial Mathematics and Statistics
  University of California, Santa Barbara
  Advisor: Dr. Jean-Pierre Fouque
  Title: **Interacting Particle Systems for Pricing Credit Derivatives**
- **M.S., Financial Mathematics** — Dec. 2005
  North Carolina State University-Raleigh, NC
- **B.S., Mathematics** — May 2003
  North Carolina State University-Raleigh, NC

Professional Experience

- **UBS** - Stamford, CT — 6/07-8/07, 10/07-12/07
  Summer Associate - Credit Risk Portfolio Control and Exposure
  - Co-designed, implemented and executed a new calibration procedure for an interest rate model to daily market quotes.
  - Estimated the correlation matrix for interest rates and FX rates for use in a Monte Carlo simulation engine for credit risk exposure.
  - Performed stability analysis and stress testing of the new calibration procedures to determine its robustness.
  - Researched methods to incorporate exotic interest rate derivatives in a Monte Carlo simulation engine for credit risk exposure.
- **Progress Energy** - Raleigh, NC — 3/06-8/06
  Quantitative Analyst Intern
  - Co-designed, implemented, and executed a new Monte Carlo Value-at-Risk software for a multi-commodity portfolio.
  - Estimated parameters for the VaR software; including the correlation matrix and the unobserved off-peak power volatility.
  - Developed and implemented methods to analyze the hedging effectiveness of their gas and power portfolios.
- **SAMSI** - RTP, NC — 8/05-5/06
  Program in Financial Mathematics, Statistics, and Econometrics
  Graduate Fellow
  - Collaborated on research in various financial mathematics topics.
  - Organized and helped execute a two-day workshop for undergraduates in financial mathematics.
  - Researched and presented current research trends in credit risk to SAMSI colleagues.

- **SAS Institute** - Cary, NC 7/04-1/05
  Technical Student
  - Tested software code, exercises, and exercise solutions for the SAS Risk Dimensions course.
  - Co-wrote the user's manual for SAS OpRisk VaR.
  - Tested software code, exercises, and exercise solutions for the SAS Portfolio Credit Risk and Risk Dashboard course.

Consulting Experience

- **Interactive Supercomputing** - Waltham, MA 11/06, 2/07
  - Developed discrete Asian option pricing and hedging program to illustrate the use of parallel Matlab.
  - Advised and provided analysis for using parallel Matlab to solve large dimensional problems in quantitative finance.

Publications

- *Interacting Particle Systems for the Computation of CDO Tranche Spreads with Rare Defaults* (with R. Carmona and J.P. Fouque), submitted.
- **SAS® OpRisk VaR 2.5 User's Guide**, SAS Publishing, 2004.

Presentations

- Interacting Particle Systems for Pricing CDO Tranche Spreads with Rare Defaults. Special Session in Financial Mathematics, AMS Annual Meeting. San Diego, January 2008.
- Interacting Particle Systems for the Pricing of CDO Trances, National Tsing Hua University. Hsinchu, Taiwan. September 2007.
- Probability Seminar: Interacting Particle Systems for the Pricing of CDO Tranches, Academia Sinica. Taipei, Taiwan. August 2007.
- FRG Credit Risk Group: Applying Interacting Particle Systems to pricing CDO's, UCSB March 2007.
- FRG Credit Risk Group: Numerical Simulation of rare events using Interacting Particle Systems, UT Austin April 2006.
- SAMSI Undergraduate Workshop: binomial tree approach to option pricing, stochastic differential equations and Monte Carlo simulation of the Black-Cox model of defaultable bonds, November 2005.
- SAMSI Credit Risk Research Group: modeling the recovery rate in credit risk models, September 2005.