

STATISTICS COLLOQUIUM

MONDAY, APRIL 9, 2007

TALK: 4:00 PM — SCIENCE CENTER RM. B-10

RECEPTION: 5:15 PM — SCIENCE CENTER, 7TH FLOOR

“Estimating Price Sensitivities Through Monte Carlo”

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ABSTRACT

The problem of calculating price sensitivities ("Greeks") for derivative securities is central to both the theory and practice of financial engineering. Complex pricing models often require Monte Carlo methods for valuation and thus raise difficulties associated with hedging through Monte Carlo. We give a brief review of the traditional pathwise and likelihood ratio methods, and discuss recent developments. We present results (joint with Nan Chen) showing the connection between estimators derived from Malliavin calculus and more traditional methods. We also discuss an adjoint method (joint with Mike Giles) that can dramatically accelerate the calculation of path wise estimates. Time permitting, we discuss open problems and future directions.