

Department of Applied Mathematics and Statistics  
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SEMINAR

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AN AMERICAN OPTION PRICING METHOD ON MARKOV PROCESSES

ABSTRACT

This talk presents a fast, flexible numerical technique to price American options and generate their value surface through time. The method runs faster and more accurately than the standard CRR binomial method in practical cases and calculates options on a considerably broader family of new, useful underlying asset processes. The technique relies on the Fast Fourier Transform (FFT) to convolve a transition function for the underlying asset process. The method allows the underlying asset process to be quite general; the classical standard geometric Brownian motion and the Variance Gamma process (Madan, 1998), and a novel, purely empirical transition function are compared by computing their respective American put value surface and the exercise boundaries.