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**Richard H Stockbridge\*** ([stockbri@uwm.edu](mailto:stockbri@uwm.edu)), Department of Mathematical Sciences,  
University of Wisconsin Milwaukee, PO Box 413, Milwaukee, WI 53201-0413. *Numerical Solution  
of Singular Stochastic Control Problems*. Preliminary report.

This talk focuses on the control of singular stochastic processes. The dynamics of the processes are formulated in terms of a martingale problem for both absolutely continuous and singular generators associated with the process. Two different numerical approaches will be discussed and compared using a variation of the bounded follower problem studied by Beneš, Shepp and Witsenhausen for illustration.

The first approach involves formulating the control problem as an infinite-dimensional linear program over two “occupation” measures. One of these measures captures the occupation of the process with respect to regular time and the other with respect to “singular” time. The talk will then demonstrate that the LP approach can be implemented numerically with success using two different finite-dimensional approximations.

For comparative purposes, the second approach uses a finite-dimensional approximation of the dynamic programming HJB equation.

This research is joint work with Peter Kaczmarek, Stuart Kent, George Rus and Bruce Wade. (Received August 04, 2006)