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Andrew Papanicolaou*, NYU Polytechnic School of Engineering, 6 Metrotech Center,
Brooklyn, NY 11201. *Forward-Backward SDEs for Control with Partial Information.*

This talk considers the non-Markov control problem that arises when a hidden state must be filtered before an action is taken. The problem involves nonlinear filtering, which means the control problem is infinite dimensional and cannot be solved using Hamilton-Jacobi-Bellman (HJB) equations. Instead, the problem is analyzed and solved using a system of forward-backward SDEs. A numerical method is proposed using a particle filter, and accuracy of the method is proven. In applications, this problem is relevant in finance for management portfolios of commodities ETFs. (Received June 28, 2015)