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Harry Randolph Hughes* (hrhughes@math.siu.edu), Department of Mathematics, Mailcode 4408, Southern Illinois University Carbondale, Carbondale, IL 62901-4408. *Variational approach to pathwise solution of stochastic optimal control problems.* Preliminary report.

A new extension of the classical calculus of variations to the stochastic setting is described. This method is applied to produce both anticipating and non-anticipating, pathwise solutions of stochastic optimal control problems, including constrained problems. Analytic solutions for illustrative examples as well as efficient numerical methods is presented. (Received August 24, 2006)