1108-93-11 **Zhixin Yang*** (yangzhix@uwec.edu), HHH 420 Department of Mathematics, University of Wisconsin-Eau Claire, Eau Claire, WI, and **George Yin** and **Qing Zhang**. *Mean-variance type controls involving a hidden Markov chain: models and numerical approximation.*

This work develops models and numerical methods for controlled regime-switching systems that stem from a mean-variance formulation. Distinct from the prior treatments, the switching process is a hidden Markov chain. Assuming a noisy observation of switching process corrupted by white noise is available, we focus on minimizing the variance subject to a fixed terminal expectation. Using the Wonham filter, we convert the partially observable system to a completely observable one first. Because closed-form solutions are virtually impossible to obtain, our main effort is devoted to designing a numerical algorithm. Convergence of the algorithm is obtained. A numerical example is provided to demonstrate the results. (Received October 21, 2014)