1067-60-394   **Zhuo Jin*** (`zjin@math.wayne.edu`), 656 W.Kirby, 1150 FAB, Department of Mathematics, Wayne State University, Detroit, MI 48202. *Numerical Methods for Annuity-Purchasing Decision Making.*

This work develops approximation methods to obtain the optimal annuity-purchasing strategies to minimize the probability that a fixed consumption level lead to zero wealth while the individual is still alive. A regime-switching diffusion model is considered, which includes both continuous dynamics and discrete events modulated by a finite-state Markov chain. The solution can be represented by a system of Hamilton-Jacobi-Bellman (HJB) equations. By using Markov chain approximation method, a discrete-time controlled Markov chain with two component is constructed. The convergence of approximation sequence to the wealth process and value function is established. At last, several examples are provided to illustrate the performance of the algorithms. (Received September 01, 2010)