1067-60-502 **Tien Nguyen Dung*** (dungnt@math.wayne.edu), Department of Mathematics, 1118 Faculty/Administration Building, 656 W. Kirby, Detroit, MI 48202, and **George Yin** (gyin@math.wayne.edu), Department of Mathematics, 1217 Faculty/Administration Building, 656 W. Kirby, Detroit, MI 48202. *Systems of Kolmogorov Backward Equations for Two-Time-Scale Switching Diffusions.*

We consider solutions of systems of backward equations for continuous-time Markov processes. In the model, the systems display both diffusive and switching behavior featuring in the coexistence of continuous dynamics and discrete events. Unlike the usual consideration of Markovian regime-switching systems, the generator of the switching component depends on the continuous state. Fast switching systems and fast diffusion systems are treated by using the two-time-scale formulation. Under appropriate conditions such as boundedness and smoothness, asymptotic expansions are developed for the solutions of the systems of backward equations. (Received September 07, 2010)