

Hybrid Switching Diffusion Systems

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This talk reports some of our recent work on regime-switching diffusion systems in which continuous dynamics and discrete events coexist. One of the distinct features is the discrete events depend on the diffusions. First, motivational examples arising from singular perturbed Markovian systems, manufacturing, and financial engineering will be mentioned. Then we recall the notion of recurrence and regularity. After necessary and sufficient conditions for recurrence are provided, ergodicity will be examined, and stability will be studied.



George Yin received the B.S. in mathematics from the University of Delaware in 1983, M.S. in Electrical Engineering, and Ph.D. in Applied Mathematics from Brown University in 1987. He then joined the Department of Mathematics, Wayne State University (WSU), and became a professor in 1996. He served on many technical committees and program committees; he was the first editor of SIAM Activity Group on Control and Systems Theory Newsletter, Co-chair of 1996 AMS-SIAM Summer Seminar, Co-chair of 2003 AMS-IMS-SIAM Summer Research Conference: Mathematics of Finance, and Co-organizer of 2005 IMA Workshop on Wireless Communications. He is an associate editor of SIAM Journal on Control and Optimization, Automatica, and several other journals. He was an associate editor of IEEE Transactions on Automatic Control. He received a number of awards from WSU, and was elected WSU's Academy of Scholars in 2006. He is an IEEE Fellow.