Regime-switching models via stochastic optimal control & robust control theory, with applications in finance and insurance

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Abstract

This presentation consists in newest advancements in both (i) stochastic optimal control and games with jumps in finance under delay and regime switching, and (ii) stochastic optimal control and games in pension fund systems with new elements of regime switching and longevity. (iii) Time is reserved to enjoy the beauty of the underlying and employed mathematics, to discussions about pros and cons of different approaches, e.g., maximum principle vs dynamic program and Isaacs-Hamilton-Jacobi-Bellman equation, as well as to outlooks at future studies and applications, such as in physics, neuroscience and cosmology.

Keywords: *Optimal control and applications, Optimization under uncertainty and applications, SS - Optimal and stochastic optimal control and games*

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