Optimal Control under Partial Information: A Brief Introduction

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Abstract: In this talk, we will first present a couple of examples from mathematical finance which call for the combined study of stochastic filtering and control. We will survey some methods for the decoupling of the two problems and the solutions to each of them.

References

[1] J. Huang, G. Wang, and J. Xiong (2009). A maximum principle for partial information backward stochastic control problems with applications, *SIAM J. Control Optim.*, **48**, 2106–2117.

[2] G. Wang, Z. Wu, and J. Xiong (2013), Maximum principles for forward-backward stochastic control systems with correlated state and observation noises, *SIAM J. Control Optim.*, **51**, 491–524.

[3] G. Wang, Z. Wu and J. Xiong (2015). A linear-quadratic optimal control problem of forward-backward stochastic differential equations with partial information, *IEEE Transactions on Automatic Control*, **60**,A no.11, 2904–2916.

[4] J. Xiong and X.Y. Zhou (2007). Mean-Variance portfolio selection under partial information, *SIAM J. Control Optim.*, **46**, no. 1, 156–175.