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# THE PROPAGATION OF CHAOS FOR THE MULTIPLE OPTIMAL STOPPING PROBLEM

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## Abstract

The optimal stopping problem of  $N$  particles derived by interacting diffusion processes can be characterized by a cascade of obstacle Cauchy problems. The limiting problem is an optimal stopping problem of a McKean-Vlasov diffusion with criterion defined as a function of the law of the stopped process. The corresponding dynamic programming equation is an obstacle problem on the Wasserstein space, and is obtained by means of a general Itô formula for flows of marginal laws of càdlàg semimartingales. We provide a verification result which characterizes the nature of optimal stopping policies, highlighting the crucial need to randomized stopping. We also introduce a notion of viscosity solutions on the Wasserstein space which allows to characterize the value function, and we prove a result of propagation of chaos by adapting the monotone scheme convergence argument.

**Date :** Wednesday, November 10, 2021

**Time:** 19:00

**Place:** Zoom