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A New Approach of Optimal Control Problem for Mean-Field Forward-Backward Systems.

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SUMMARY

We study a new approach of optimal control problems where the state equation is a Mean-Field Forward-Backward stochastic differential equation, and the set of strict (classical) controls need not be convex, and the diffusion coefficient and the generator coefficient depends on the terms being controlled. In this paper, the main result consists of necessary conditions as well as a sufficient conditions for optimality in the form of a relaxed maximum principle.

Keywords and phrases: Mean-Field Forward-Backward stochastic differential equation; Stochastic maximum principle; Relaxed control; Adjoint equation; Variational inequality.

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