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**EXISTENCE OF AN OPTIMAL CONTROL IN INFINITE-HORIZON
PROBLEMS WITH UNBOUNDED SET OF CONTROL CONSTRAINTS**

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We consider a class of infinite-horizon optimal control problems with not necessarily bounded set of control constraints. Sufficient conditions for the existence of an optimal control are derived in the general nonlinear case by means of finite-horizon approximations and the tools of the Pontryagin maximum principle. Conditions guaranteeing the uniform local boundedness of optimal controls are also obtained.

Keywords: optimal control, infinite horizon, unbounded controls, existence of a solution, the Pontryagin maximum principle.

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