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[Stochastic modeling, control and applications]

[Partially observed undiscounted stopping control problems]

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Abstract:[We assume that the state process is Markov and consists of two coordinates: an observed one and unobserved, which itself is a Markov process and is observed only through the first coordinate, the dynamics of which depends on the second coordinate. We study optimal stopping problem of the state process with the reward functional consisting of an undiscounted running cost and terminal reward depending on the value of stopped state process. Sufficient conditions for the existence of an optimal stopping time and continuity of value function are shown. In the paper the main assumption is that an integral of the running cost with respect to the invariant measure is negative, the terminal reward is bounded from above and we have a nice properties of 0 potential. The results are then applied to study partially observed average cost per unit time impulse control consisting of shifts to a given compact set in random times, which have to be determined in an optimal way. The paper is considered as a generalization of recent results with dr Jan Palczewski concerning ergodic optimal stopping problems with perfect observation.]