

# DISTRIBUTIONALLY ROBUST INVENTORY CONTROL WHEN DEMAND IS A MARTINGALE

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In this talk, we consider the problem of optimally controlling an inventory in the presence of uncertainty. In particular, we suppose that the joint distribution (over time) of the sequence of demands belongs to some unknown set of joint distributions, and wish to pick the control policy which is optimal against a worst-case distribution belonging to this set. Departing from previous work, in which the adversary is typically restricted to product measures, we consider the setting in which the joint distribution must take the form of a martingale with bounded support. We characterize the optimal policy in this setting, and draw some interesting conclusions about how well one can perform under different assumptions on the joint distribution of demand.