

Bellmann's Equation for Stochastic Games with Discount Control

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The above problem leads to diagonal elliptic or parabolic systems with a right hand side growing quadratically in the gradient of the value functions. Discount control means that the discount factors $\exp(-at)$ in the cost functionals may be depend on the control functions v , i.e. $a = a(v)$. This creates a non-linearity on the right hand side of the system which is not covered by known techniques from partial differential equations. We discuss this situation and present some new existence and regularity results for such Bellmann systems.