

Reflected BSDE with irregular obstacles and optimal stopping

Peter Imkeller, HU Berlin

Reflected backward stochastic differential equations (RBSDE) are a well known tool for solving American and game option problems. The case of reflection at continuous adapted or cadlag lower barriers is well understood. We develop tools to deal with obstacles that are optional but have essentially less regularity. Among the tools is Mertens decomposition of optional strong supermartingales. The corresponding RBSDE are applied to an optimal stopping problem in which the risk of a financial position is assessed by a nonlinear conditional expectation. We characterize the value function, and formulate conditions under which optimal stopping times exist. This is joint work with Miryana Grigorova, Marie-Claire Quenez, Elias Offen and Youssef Ouknine.