Customized fully implementable numerical schemes for FBSDEs

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In this talk we introduce a family of explicit numerical approximations for the forward backward stochastic differential equations (FBSDEs). We show that newly developed methodology allows to analyse BSDEs with drivers having polynomial growth and that are also monotone in the state variable. This offers a probabilistic scheme for wide class of reaction-diffusion PDEs. Proposed schemes preserve qualitative properties of the solutions to the FBSDEs for all ranges of time-steps. We conclude the talk by presenting a new efficient algorithm that allows to approximate conditional expectations in BSDEs setting. This leads to fully implementable numerical scheme.

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