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Monte Carlo Schemes for nonlinear PDE's.

Monte Carlo methods provide faster evaluation of financial derivatives in higher dimensions comparing to other methods, e.g. finite element. Moreover, they are both available in Markovian and non-Markovian models. In some Markovian models, the PDE for the price of the derivative is nonlinear and the classical Feynman-Kac formula does not work. We review some of the Monte Carlo schemes for semi-linear (mildly nonlinear) PDEs, and present the methodology for fully nonlinear PDEs. Then, we briefly sketch the convergence techniques for a general Monte Carlo scheme and present the components of error analysis. Finally, we conclude the talk with some numerical examples. (Received August 02, 2013)