962-60-905   **Jin Ma*** (`majin@math.purdue.edu`), Department of Mathematics, Purdue University, West Lafayette, IN 47907-1395. *Some Fine Properties of Solutions to Backward Stochastic Differential Equations.*

We consider a class of backward stochastic differential equations (BSDEs) whose terminal values are allowed to depend on the history of a forward diffusion. We first establish a Feynman-Kac type of representation formula for the gradient of the viscosity solution to a quasilinear PDE without using the derivatives of the coefficients of the SDEs. Using this representation and some approximating precedure we then investigate the path regularity of solutions to such BSDEs, we show that if the terminal functional is Lipschitz under L^∞-norm or under L^1-norm, then the solution pair to the BSDE has at least a càglàd version. In particular, in the latter case the version can be chosen as continuous. The results can be used to produce a probablistic proof of the regularity of solutions to a class of quasilinear PDEs, and to study the path regularity of more general martingale representaions with jumps. (Received September 28, 2000)