GENERALIZED BSDES DRIVEN BY FRACTIONAL BROWNIAN MOTION

KATARZYNA BORKOWSKA, ALINA SEMRAU-GIŁKA

Fractional Brownian motion (fBm) with Hurst parameter $H \in (0,1)$ is a zero mean Gaussian continuous process $B^H = \{B_t^H,\ t \geq 0\}$ with the covariance function

$$R_H(s,t) = E\left(B_s^H B_t^H\right) = \frac{1}{2}\left(t^{2H} + s^{2H} - |t-s|^{2H}\right).$$

The aim of the presentation is to show the existence and uniqueness of the solution of generalized backward stochastic differential equation with respect to fBm ($H > 1/2$) of the form

$$Y_t = \xi + \int_t^T f(s, \eta_s, Y_s, Z_s)ds + \int_t^T g(s, \eta_s, Y_s)d\Lambda_s - \int_t^T Z_s dB_s^H,$$

where $\{\eta_t\}_{t\in[0,T]}$ is a solution of a stochastic differential equation with reflection, f, g are continuous functions and $\{\Lambda_t\}_{t\in[0,T]}$ is an increasing process.