

Subelliptic stochastic Hamilton-Jacobi equations.*

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Abstract

We consider the Cauchy problem for subelliptic stochastic Hamilton-Jacobi equations of the type

$$u_t + H(Xu) \odot dW(t) = 0$$

$$u(x, 0) = u_0(x)$$

Where $X = (X_1, \dots, X_m)$ where X_i are vector fields generating a Carnot group, $W(t)$ is a brownian motion with values in \mathbf{R}^m , H is a C^3 function with values in \mathbf{R}^m and $\odot d$ denotes the Stratonovich differential. Under regularity assumptions we apply the stochastic characteristics method to obtain a local regular solution of our problem. Then we define a suitable notion of viscosity solution and we give an existence and uniqueness result for the viscosity solution. We give only a sketch of the proofs in the case of the Heisenberg group on \mathbf{R}^3 .

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