On bivariate distributions of the local time of Ito-McKean diffusions

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I present a description of the distribution of L_t, for fixed t, the local time of an Itô-McKean diffusion X (a representation of the density of L_t in terms of the Bessel function J_0 and a convolution exponent of the transition density of X. Next, I provide a simple connection formula for the distribution of excursions of a bivariate Itô-McKean diffusion from a hyperplane, a formula for the transition density of the bivariate Markov process (X, L), a formula for the distribution of (X_t, L_∞) for a transient diffusion. An application of these results to generalized Stroock–Williams equation will be presented. The presentation is based on joint work with Maciej Wiśniewolski [1].

References

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