On the zero set of super-Brownian motion

Abstract

We study the density of one-dimensional super-Brownian motion given by the non-negative solution of

$$\frac{\partial X(t,x)}{\partial t} = \frac{1}{2}\frac{\partial^2 X(t,x)}{\partial x^2} + \sqrt{X(t,x)}\dot{W}(t,x).$$

Here $\dot{W}$ is a space-time Gaussian white noise. We determine the Hausdorff dimension of the boundary of the zero set of $X(t,\cdot)$. This is a joint work with C. Mueller and E. Perkins.