

Analysis and Applied Mathematics Seminar

Fractal properties of rough differential equations driven by fractional Brownian motion

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Abstract: We will introduce fractal properties of rough differential equations driven by fractional Brownian motion with Hurst parameter $H > 1/4$. We will first survey some known results on density and tail estimates of such processes. Then we will show the Hausdorff dimension of the sample paths is equal to $\min(d, 1/H)$, where d is the dimension of the process. Also we will show that with positive probability, the level sets in the form of $\{t: X_t = x\}$ has Hausdorff dimension $1-dH$ when $dH < 1$, and are almost surely empty otherwise.

Monday, March 14 at 4:00 PM in SEO 636