1108-60-327 **Yuval Peres***, 1 Microsoft Way, Redmond, WA 98052. *Monotone restrictions of Brownian motion, variable drift and self-affine graphs.*

I will present two recent fractal studies of Brownian graphs. Let $\{B(t)\colon 0 \leq t \leq 1\}$ be a linear Brownian motion and let $\alpha > \frac{1}{2}$. In joint work with Richard Balka (University of Washington), we prove that, almost surely, there is no set $A \subset [0,1]$ such that its Hausdorff dimension $\dim A > \frac{1}{2}$ and $B\colon A \to \mathbb{R}$ is $\alpha$-Hölder continuous. The proof uses Kaufman's dimension doubling theorem for planar (!) Brownian motion. We deduce that, almost surely, there is no set $A \subset [0,1]$ such that $\dim A > \frac{1}{2}$ and $B\colon A \to \mathbb{R}$ is weakly increasing. The second topic is joint work with Perla Sousi (Cambridge). For any Borel function $f$ from the unit interval to $\mathbf{R}^d$, we express the Hausdorff dimension of the image and the graph of $B + f$ in terms of $f$. When the graph of $f$ is a self-affine McMullen-Bedford carpet, we obtain an explicit formula for the dimension of the graph of $B + f$ in terms of the generating pattern. In particular, we show that it can be strictly bigger than the maximum of the Hausdorff dimensions of the graphs of $f$ and $B$. Despite the random perturbation, the Minkowski and Hausdorff dimensions of the graph of $B + f$ can disagree. (Received January 17, 2015)