Contribution Title:	MAXIMUM LOCAL ROUGHNESS IN 2D BROWNIAN AND PERCOLATION MODELS
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YRS seminar:	NO

As a model of the boundary curve between two phases, consider the boundary of a finite cluster in supercritical percolation, conditioned to entrap a large area; or a low-temperature Ising model in a finite region, where an excess of plus signs is conditioned to be present, the excess typically collecting in a single large droplet; or a planar Brownian motion conditioned to enclose a large area, where the droplet is asymptotically circular. We discuss several techniques that address the fluctuation behaviour of such boundary curves. There are several ways to measure this fluctuation, including the length of the longest line segment in the convex boundary of the curve, and the maximum local roughness, which measures the inward deviation of the curve from this boundary. We will explain a rough probabilistic equivalelnce between the first of these quantities and the "area excess" enclosed by the curve, for some of the models in question.

Joint work with Yuval Peres, and a forthcoming independent article.