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The Gaussian free field: local sets and their dimensions

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The two-dimensional Gaussian free field is the canonical model for a random surface and is important in many different areas of mathematics and physics. It is the two-dimensional time analog of Brownian motion and enjoys many similar properties, such as a certain domain Markov property and local sets, i.e., higher-dimensional versions of stopping times. In this talk, we introduce these notions, with the Brownian motion in mind, and discuss the properties of these random sets as well as briefly describe how to compute the dimensions of a certain class of local sets. The talk is based on joint work with Avelio Sepúlveda and Fredrik Viklund.

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