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Sample functions of self-similar stable random fields have interesting analytic and geometric properties which are more difficult to study compared with their Gaussian counterparts. In particular, many questions regarding regularity properties (e.g., uniform modulus of continuity, modulus of nondifferentiability) remain unsolved.

In this talk, we present some recent results on regularity properties of self-similar stable random fields. Based on the seminal works of Rosinski (1995, 2000) and Samorodnitsky (2004), we derive sharp results on the rate of growth of the maximal moments for many stationary symmetric stable random fields. As applications, we establish upper bounds for the uniform modulus of continuity of stable random fields with stationary increments. (Received May 26, 2018)