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On covariance functions of Gaussian self-similar random fields with stationary rectangular increments.

Joint with Yuliya Mishura

Self-similar random fields that are an extension of self-similar stochastic processes are considered. Fractional Brownian sheets are one example of such Gaussian anisotropic self-similar random fields. It is well known that the fractional Brownian motion is a unique Gaussian self-similar process with stationary increments. In this talk the existence of Gaussian self-similar random fields with stationary rectangular increments, that are not fractional Brownian sheets, is presented. In order to establish the main result, some properties of covariance function for self-similar fields with rectangular increments have been proved and the class of covariance functions with specific properties were constructed.

Makogin, V., and Mishura, Y. (2015). Example of a Gaussian self-similar field with stationary rectangular increments that is not a fractional Brownian sheet. *Stochastic Analysis and Applications*, 33(3), 413-428