SUBORDINATED RANDOM FIELDS AND ELLIPTIC PDES

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ABSTRACT

We present a subordination approach to generate Lévy-type discontinuous random fields on a higher dimensional spatial parameter domain. Theoretical results on the pointwise distribution, the covariance structure and the numerical approximation of these random fields are discussed. Further, we consider elliptic partial differential equations where the constructed fields appear in the diffusion coefficient of the equation and present numerical examples for the approximation of the solution to the corresponding random PDE using finite element methods.

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