Puplinskaitė, Donata; **Surgailis, Donatas**

Scaling transition for long-range dependent Gaussian random fields. (English) Zbl 1317.60062

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Summary: In [*D. Puplinskaitė* and *D. Surgailis*, "Aggregation of autoregressive random fields and anisotropic long-range dependence", Preprint, urlarxiv:1303.2209v3] we introduced the notion of scaling transition for stationary random fields X on $\mathbb{Z}^2$ in terms of partial sums limits, or scaling limits, of X over rectangles whose sides grow at possibly different rate. The present paper establishes the existence of scaling transitions for a natural class of stationary Gaussian random fields on $\mathbb{Z}^2$ with long-range dependence. The scaling limits of such random fields are identified and characterized by dependence properties of rectangular increments.

MSC:

60G60 Random fields
60G15 Gaussian processes
60G10 Stationary stochastic processes

Keywords:

stationary Gaussian random fields; scaling transition; long-range dependence; operator scaling random field

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