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Laslett's Transform for the Boolean Model in $\mathbb{R}^d$

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Abstract: Consider a stationary Boolean model X with convex grains in $\mathbb{R}^d$ and let any exposed lower tangent point of X be shifted towards the hyperplane $N_0 = \{x \in \mathbb{R}^d : x_1 = 0\}$ by the length of the part of the segment between the point and its projection onto the N_0 covered by X. The resulting point process in the halfspace (the Laslett's transform of X) is known to be stationary Poisson and of the same intensity as the original Boolean model. This result was first formulated for the planar Boolean model (see N. Cressie [**?**]) although the proof based on discretization is partly heuristic and not complete. Starting from the same idea we present a rigorous proof in the d-dimensional case. As a technical tool equivalent characterization of vague convergence for locally finite integer valued measures is formulated. Another proof based on the martingale approach was presented by A. D. Barbour and V. Schmidt [**?**].

Keywords: Boolean model; Laslett's transform;

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