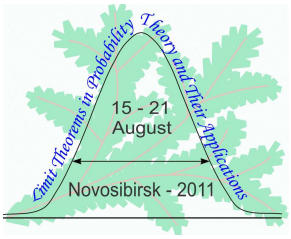

On Rice's formula for stationary multivariate piecewise smooth processes

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Let $X = \{X_t : t \geq 0\}$ be a stationary piecewise continuous $\mathbb{R}^d$-valued process that moves between jumps along the integral curves of a given continuous vector field, and let $S \subset \mathbb{R}^d$ be a smooth surface. We derive a multivariate version of Rice's formula, relating the intensity of the point process of (localized) continuous crossings of S by X to the distribution of X_0. Our result is illustrated by examples relating to queueing networks and stress release network models.

[Jointly with G. Last.]