

Séminaire de Probabilités et Statistique

Mardi 18 février à 14h00

Laboratoire Dieudonné
Salle de conférence - LJAD

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*Lipschitz-Killing curvatures of excursion sets for
two-dimensional random fields*

travail en collaboration avec : Hermine Biermé, Céline Duval et Anne Estrade

We study three geometrical characteristics for the excursion sets of X a 2-dimensional standard (centered and unit variance) stationary isotropic random field. These characteristics can be estimated without bias if the field satisfies a kinematic formula, such as a smooth Gaussian field or some shot noise fields. If the field is Gaussian, we show how to remove the constraining assumption that the field is standard, and adapt the previous estimators. We illustrate how these quantities can be used to recover some parameters of X and perform testing procedures. Finally, we use these tools to built a test to determine if two images of excursion sets can be compared. This test is applied on both synthesized and real mammograms.