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Spatial interaction facet processes, asymptotics and statistics

Joint with Jakub Večeřa

We investigate finite facet processes in arbitrary Euclidean dimension. Facets are compact subsets of hyperplanes with fixed shape. Our model is given by a density with respect to the Poisson process. Repulsive interactions come from the influence on the measure of intersections among objects.
In the first part of the talk, given a process with finitely many facet orientations, some asymptotic results including the central limit theorem when the intensity of the reference process tends to infinity are presented. In the second part we consider estimation of the parameters and of the orientation distribution of the model in the planar case. A fully parametric and a semiparametric method is presented based on the Takacz-Fiksel approach.