

# Random Laguerre Tessellation

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*Based on joint work with Zbyněk Pawlas and Matthias Schulte.*

Random tessellations form a prominent family of models from stochastic geometry used in materials science, biology and other fields. The object of our research is the random Laguerre tessellation, i. e. a weighted generalization of the well-known Voronoi tessellation, whose generator is an independently marked stationary point process  $\eta$  in  $\mathbb{R}^d \times \mathbb{R}$ . The most well-studied case is the Poisson-Laguerre tessellation, where  $\eta$  is considered to be an independently marked Poisson point process.

In this talk, we discuss how to deal with possibly unbounded marks, using the concept of tempered configurations. We also discuss how these can help us to study the distance to the furthest neighbor of a typical point of the point process, where two points are considered neighbors if their cells share a vertex. We also study the asymptotic behavior of large cells of the Poisson-Laguerre tessellation, where the size of the cell is measured through the inradius w.r.t. its generating point. We discuss the convergence of the process of large inradii and their generating points to a suitable Poisson process first in a setting with uniformly bounded marks for  $d \geq 3$ , in a setting with heavy-tailed marks for  $d \geq 2$  and in a setting with marks with sufficiently light tails for the planar tessellation.