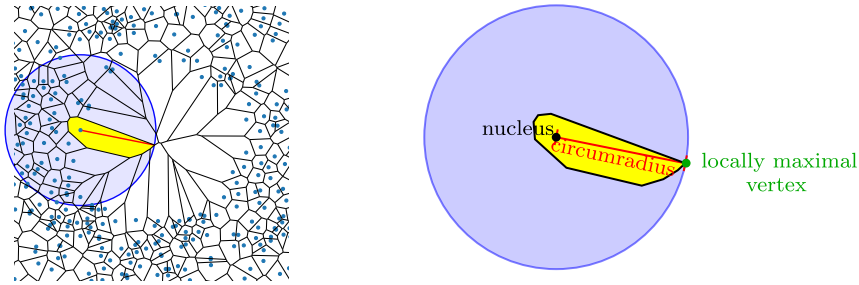


LONG AND POINTY POISSON-VORONOI CELLS: THE DISTRIBUTION TAIL OF THE CIRCUMRADIUS OF THE TYPICAL CELL

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ABSTRACT. Our model of interest is the *Poisson-Voronoi tessellation* generated by a homogeneous Poisson point process in \mathbb{R}^d . Our object of study is the *typical cell*, which corresponds to a cell chosen uniformly at random from the set of cells intersecting a large window, and more precisely its *circumradius*. The circumradius of a cell is the smallest radius that a ball centered on the nucleus must have to fully cover it, see figure.



We obtain an equivalent for the tail distribution of R_{circ} : when t tends to infinity,

$$\mathbb{P}(R_{\text{circ}} \geq t) \sim C_d t^{d(d-1)} e^{-\kappa_d t^d}.$$

The value of the constant C_d is provided by the new calculation of the expected volume of a certain random simplex in the unit ball.

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