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Matthias Reitzner* (matthias.reitzner@tuwien.ac.at), Inst. f. Discrete Math. and Geometry, Vienna 1040, and **Matthias Heveling**. *Poisson-Voronoi approximation.*

Let X be a Poisson point process and $K \subset \mathbb{R}^d$ a measurable set. Construct for all points $x \in X$ the Voronoi cells with respect to X , and denote by $v_X(K)$ the union of all Voronoi cells with center in K . We call $v_X(K)$ the Poisson-Voronoi approximation of K . For K a compact convex set the expectation of the volume difference $V_d(v_X(K)) - V_d(K)$ and the symmetric difference $V_d(v_X(K) \Delta K)$ is investigated. Precise estimates for the variance and large deviation inequalities for both quantities are obtained. (Received February 22, 2007)