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*Exact Point Location in Generalized Voronoi Diagram*

The talk is devoted to the problem of exact point-location in a generalized  $d$ -dimensional Voronoi Diagram in the Euclidean space. The exact point location problem typically requires the solution for expressions of degree four. An approximation of the solution using using expression of a smaller degree is possible through polyhedral metrics. In general dimensions two Minkowski metrics can be used (Manhattan and supremum). The computation uses degree one. We also show that a polygonal metric can be applied in two dimensions. The computation involves only  $O(\lg k)$  calls of the algorithm ESSA for detecting the sign of a sum using floating-point arithmetic.