

RANDOM APPROXIMATIONS BY GENERALIZED DISC-POLYGONS

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(Joint work with Ferenc Fodor and Viktor Vígh)

For two convex discs K and L , we say that K is L -convex if it is equal to the intersection of all translates of L that contain K . We study the following probability model: let K and L be C_+^2 smooth convex discs such that K is L -convex. Select n i.i.d. uniform random points x_1, \dots, x_n from K , and consider the intersection $K_{(n)}$ of all translates of L that contain all of x_1, \dots, x_n . The set $K_{(n)}$ is a random L -convex polygon in K . We study the expectation of the number of vertices and missed area of $K_{(n)}$ as n tends to infinity. We consider two special cases: in the first case we assume that the curvatures of K and L can be bounded away from each other uniformly, in the other case we let $K = L$. This is joint work with F. Fodor and V. Vígh (Szeged).