

A CENTRAL LIMIT THEOREM FOR RANDOM DISC-POLYGONS

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We study the following probability model. Let K be a convex disc with C_+^2 boundary that is contained in a circle of radius r . Let X_1, \dots, X_n be i.i.d. uniform random points from K . The intersection K_n^r of all radius r circular discs that contain X_1, \dots, X_n is called a (uniform) random r -disc-polygon. Under these assumptions $K_n^r \subset K$. We prove a quantitative central limit theorem for the area of K_n^r . We combine different tools such as Stein's method from probability theory, geometric estimates for floating bodies and the asymptotic lower bound for the variance of the area proved by Fodor, Grünfelder, Vígh (2022).

This is a joint work with F. Fodor (Szeged).