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Joseph T Lee* (joseph.tj.lee@gmail.com). *On the smallest quadrilateral containing a convex disc.*

A *convex disc* is a compact convex set in the plane with nonempty interior. For a given *unit area* convex disc K , let $\rho_4(K)$ be the area of a convex quadrilateral of *minimum area* that contains K . How large can $\rho_4(K)$ be?

A 1983 result shows that $\rho_4(K) < \sqrt{2}$ for all unit area convex discs K . On the other hand, if K is a unit area regular pentagon, it is known that $\rho_4(K) = 3/\sqrt{5} = 1.341\dots$. A long standing conjecture of Kuperberg states that $\rho_4(K) \leq 3/\sqrt{5}$ for all unit area convex discs K .

In this paper we prove that every unit area convex *pentagon* is contained in a quadrilateral of area $\leq 3/\sqrt{5}$, thus making a first step towards solving this problem. (Received February 06, 2016)