1077-53-1109　　　　**Luis A. Sordo Vieira*** (`dw8603@wayne.edu`), **Niralee K. Shah**, **Miguel Fernandez** and **Ping Ngai Chung**. *Isoperimetry in the Plane with Density e^r.*

It is well known that on $\mathbb{R}^2$ the least perimeter curve that encloses a given area is a circle. But what if we give the plane a density that weights both area and perimeter? The Log Convex Density Conjecture (LCDC) says that if the density is radial and its log is convex, circles about the origin minimize weighted perimeter for given area. We will do a quick survey of the geometry of surfaces with some different densities. We will conclude by considering the borderline case of the LCDC by investigating the plane with density e^r. Our partial results use symmetrization, generalized curvature, and the four vertex theorem to prove that a minimizer is convex and contains the origin in its interior. (Received September 16, 2011)