

1106-51-1441      **Sarah E Tammen\*** (setammen@uga.edu). *The Isoperimetric Problem in  $\mathbb{R}^n$  with Density  $r^p$* . Preliminary report.

The isoperimetric problem with a density or weighting seeks to enclose prescribed weighted volume with minimum weighted perimeter. According to Gregory Chambers' recent proof of the Log-Convex Density Conjecture, for a certain class of density functions on  $\mathbb{R}^n$ , isoperimetric regions are balls centered at the origin. We use similar methods of analyzing planar curves to investigate another conjecture that if  $\mathbb{R}^n$  has density  $r^p$ , where  $r$  is distance from the origin and  $p > 0$ , then isoperimetric regions are bounded by spheres that pass through the origin. This research is a joint project conducted by the Geometry group in the 2014 Williams College "SMALL" program and Gregory Chambers. (Received September 13, 2014)