1135-VO-2198 **John Shier** and **Douglas Dunham*** (ddunham@d.umn.edu), Department of Computer Science 320 HH, 1114 Kirby Drive, Duluth, MN 55812-3036. *A Property of Area and Perimeter.* Preliminary report.

We describe an algorithm for filling a region of the plane with progressively smaller copies of a motif. For simplicity we take the region to be a circle and the motifs to be discs, though the algorithm can be naturally modified to work with other shapes. After placing the first i discs, random locations are tried for a placement of the next disc until a position is found such that the disc does not intersect any previously placed disc. After having placed i discs, we call the remainder of the bounding circle the *gasket*. At this point we let A_i and P_i be the area and perimeter (boundary) of the gasket respectively. Thus A_i decreases and P_i increases with increasing i. We choose the radius of the next disc by $r_{i+1} = \gamma(A_i/P_i)$, where γ is a dimensionless parameter between 0 and 2 that is chosen *a priori*. As γ approaches 2, it becomes more likely that the algorithm will halt, but it rarely halts for $\gamma = 3/2$. By examining log-log plots of the areas of the discs versus i, which seems to be linear for large i, we conjecture that the areas of the discs obey an inverse power law. That power c seems to be given by the equation $c = -(4 + 2\gamma)/(4 + \gamma)$ (verified to several significant digits). (Received September 25, 2017)