

1106-H1-2130

David A. Reimann* (dreimann@albion.edu), Mathematics and Computer Science Department, 611 E. Porter St., Albion, MI 49224. *Halftoning images using solid convex and nonconvex dodecagons on a hexagonal tessellation.*

Halftoning is an image rendering method that conventionally uses solid circles of varying size and spacing to produce a given image. A halftoning method is presented where hexagons on a hexagonal tessellation are used instead of circular dots. Rather than varying the diameter of the hexagonal dots, the edge midpoints are deflected outward or inward to increase or decrease the effective dot size respectively. When deflected inward, the hexagons become relatively smaller star shaped nonconvex dodecagons and the effective dot size is decreased. When deflected outward, the hexagons become relatively larger convex dodecagons and the effective dot size is increased; in theory star shapes could be formed, however the star points would overlap adjacent stars. Example of this method will be presented, including printed and laser cut images. The interplay among the stars, the hexagonal lattice, and the underlying base image gives an image rendered with this technique visual interest. (Received September 15, 2014)