1145-VP-2935 **Tucker L Dowell*** (td4h@mtmail.mtsu.edu) and **Xiaoya Zha** (xiaoya.zha@mtsu.edu).

Counting Vertices in Tessellations of the Hyperbolic Plane.

Let $T(d, f)$ be some planar, d-regular graph such that every face has f sides. For every face of $T(d, f)$ to be a regular polygon, it must tessellate a sphere, the plane, or the hyperbolic plane. We focus on counting vertices in tessellations of the hyperbolic plane. When $T(d, f)$ induces a tessellation of the hyperbolic plane, we can draw the graph starting with some vertex v and go out in rings of faces away from v. We offer a proof for a closed form solution for the number of vertices in the n-th ring from v when $d \geq 3$, $f \geq 4$, and $T(d, f)$ induces a tessellation of the hyperbolic plane, and we offer a proof for a different closed form solution when $d \geq 7$, $f = 3$, and $T(d, f)$ induces a tessellation of the hyperbolic plane. (Received September 25, 2018)