

1125-VW-1427 **Stephanie Loewen** (loewens@mail.gvsu.edu) and **Tristan Wells*** (trwells22@ksu.edu).
Outer Billiards, Fuchsian Groups, and Fundamental Regions.

Outer (Dual) polygonal billiards is a simple plane based dynamical system on a convex polygon. A discrete subgroup of isometries of the hyperbolic plane is called a Fuchsian group if it consists of orientation-preserving transformations. Any Fuchsian group possesses connected, convex fundamental regions. In this project we would like to explore fundamental regions of the outer billiard map defined with regular tilings and possibly quasiregular tilings in the hyperbolic plane. This research was conducted as part of the 2016 REU program at GVSU. (Received September 16, 2016)