

# *Symmetries, Outer Space, and the Outer Automorphism Group of the Free Group*

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The symmetries of a polygon form a group. This group acts on the polygon by rotating it and flipping it. This basic idea of studying a group as symmetries of an object extends far beyond polygons. My favorite group is the outer automorphism group of the free group. Through a myriad of colorful pictures, I will introduce this group and the object, Culler-Vogtmann Outer Space, that it acts on. No advanced mathematical knowledge will be assumed and of course we will also play with doughnuts!

**Date: December 5, 2018**

**Time: 7:00 pm**

**Place: Park 328**