

Mathematics Student Colloquium

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Curves Generated on Surfaces by the Gilman-Maskit Algorithm

Abstract: The Gilman-Maskit algorithm determines whether or not two elements of $PSL(2, \mathbb{R})$ generate a non-elementary discrete group. Gilman-Keen reinterpreted the algorithm as an unwinding and winding of curves about each other on the quotient surface when the group was discrete, but did not contain any elliptic or parabolic elements. Gilman-Keen also found a formula to calculate the number of essential self-intersections of these curves. Here, we examine the behavior of the winding and unwinding of the curves in the general case, including the case where elliptic elements of finite order are present in the group, which makes the quotient surface an orbifold. We show that elliptic generators create curves that are self-wound and modify the Gilman-Keen formula to account for these self-windings.

**Wednesday, April 11
3:15-4:15pm
204 Smith Hall
Please note special time**