

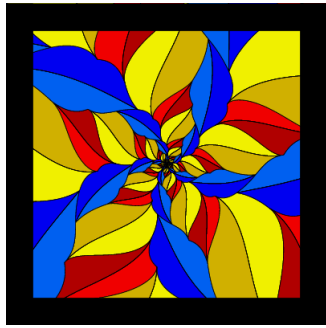
Student Research Talks (StReeTs)

Mason Experimental Geometry Lab (MEGL)

Decomposition of Complex Hyperbolic Isometries by Involutions

Cigole Thomas

Department of Mathematics Sciences
George Mason University



¹

Abstract

A k -reflection of the n -dimensional complex hyperbolic space $\mathbb{H}_{\mathbb{C}}^n$ is an element in $U(n, 1)$ with negative type eigenvalue λ , $|\lambda| = 1$, of multiplicity $k + 1$ and positive type eigenvalue 1 of multiplicity $n - k$. We will discuss the isometry group of the complex hyperbolic space and prove that a holomorphic isometry of $\mathbb{H}_{\mathbb{C}}^n$ is a product of at most four involutions and a complex k -reflection, $k \leq 2$. Along the way, we will also show that every element in $SU(n)$ is a product of four or five involutions according as $n \not\equiv 2 \pmod{4}$ or $n \equiv 2 \pmod{4}$. The talk doesn't require prior knowledge of complex hyperbolic space and uses linear algebra for most of the proofs. This is joint work with K. Gangopadhyay.

Date: Friday, November 18, 2016

Time: 2:30pm–3:30pm

Place: Exploratory Hall 4106

Pizza and soda will be served at the presentation.

For further information or for special accommodations, please contact Sean Lawton via email at seanlawton@gmail.com or drop by the MEGL.

¹Picture by Richard Schwartz