

The SUMO Speaker Series for Undergraduates

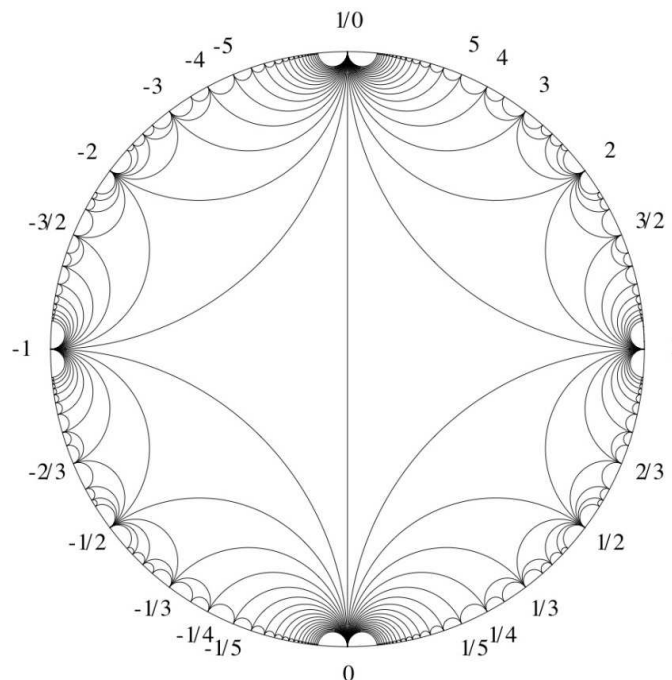
Thursday, October 24<sup>th</sup>

4:15-5:05, room 380C

(Food Provided)

# Linear Fractional Transformations

Professor Gregory W. Brumfiel



Linear fractional transformations are functions of the form  $T(z) = \frac{az+b}{cz+d}$ , where  $a, b, c, d$  are constants. These functions play a central role in complex analysis (theory of derivatives and integrals extended from real variables and functions to complex variables and functions). But LFT's also are important in many other areas, such as group theory, Euclidean and non-Euclidean geometry, basic number theory, abstract algebra, and partial differential equations.

In my talk, I will first develop some elementary algebraic and geometric properties of individual LFT's, and also some interesting structure on the set consisting of all LFT's. Then I will discuss some connections with non-Euclidean geometry and number theory.

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