ABSTRACT

PALINDROMES, HYPERBOLIC GEOMETRY AND $PSL(2,\mathbb{C})$ DISCRETENESS SEQUENCES

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A subgroup, G, of $PSL(2,\mathbb{C})$ is not discrete if there exists an infinite sequence of distinct elements of the group that converges to the identity. However, there are only ad hoc techniques for finding such a sequence in any given G. If ρ is a non-elementary representation of a rank two free group, F, into $PSL(2,\mathbb{C})$, its image, $\rho(F) = G$, may or may not be discrete or free. However, in all cases there is an ordering of the rational numbers determined by the representation. We call this the *representation ordering*. We use the hyperbolic geometry of $\mathbb{H}^3$ as applied to certain palindromes in G and the representation ordering of the rationals to construct a unique sequence corresponding to a given representation. The conjecture is that this sequence, termed the *core sequence*, will converge to the identity if the group is not discrete and will be finite in the case that the group is discrete. This is joint work with L. Keen.