Refined horoball counting for Kleinian group actions

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Abstract:

The topic of this talk revolves around the following question: given a non-elementary geometrically finite Kleinian group Γ and r0, how many horoballs (Euclidean balls tangent to the boundary of hyperbolic space at parabolic points) of radius ≈ r should we expect to see in a ball centred in the limit set of Γ? We will discuss a result of Stratmann and Velani which gives global information about this question across the whole limit set, and then provide some localisations of this result where we restrict our attention to small balls in the limit set. Time permitting, will also discuss some applications of our results to Diophantine approximation and the dimension theory of conformal measures supported on the limit set. Joint work with Jonathan Fraser.