

Geodesic planes in hyperbolic 3-manifolds

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In this talk we discuss the possible closures of geodesic planes in a hyperbolic 3-manifold M . When M has finite volume Shah and Ratner (independently) showed that a very strong rigidity phenomenon holds, and in particular such closures are always properly immersed submanifolds of M with finite area. We show that a similar rigidity phenomenon holds for a class of infinite volume manifolds. The proof uses elements from hyperbolic geometry and Margulis' approach in the proof of the Oppenheim conjecture. This is a joint work with C. McMullen and H. Oh.