

Geometry, Groups and Dynamics/GEAR Seminar
(held at the Illinois hub of GEAR)

12:00 pm Tuesday, September 8, 2015 in 345 Altgeld Hall

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Arithmetic progressions in the primitive length spectrum

Abstract: The length spectrum, i.e. the collection of all lengths of closed geodesics on a hyperbolic manifold, has drawn much attention over the last few decades. Of particular interest has been the question of whether the length spectrum determines the commensurability class of such a manifold. There have also been a host of prime geodesic theorems displaying a surprising analogy between the behavior of primitive, closed geodesics on hyperbolic manifolds and the behavior of the prime numbers in the integers. For instance, just as the prime number theorem dictates the asymptotic growth of primes less than n , there is an analogous asymptotic for primitive, closed geodesics of length less n . In this talk, I will review some basics on the length spectrum and survey some existing results exhibiting this connection. I will then go on to discuss some recent work on arithmetic progressions in the primitive length spectrum extending this relationship.

[Video](#)