Algebra Seminar

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Almost prime coordinates in thin Pythagorean triangles

Abstract:
The affine sieve is a technique first developed by Bourgain, Gamburd, and Sarnak in 2006 and later completed by Salehi Golsefidy and Sarnak in 2010 to study almost-primality in a broad class of affine linear actions. The beauty of this is that it gives us effective bounds on the saturation number for thin orbits coming from $GL_n$ - in particular, producing infinitely many $R$-almost primes for some $R$. However, in practice this value of $R$ is often far from optimal. The case of thin Pythagorean triangles has been of particular interest since the outset of the affine sieve, and I will discuss recent progress on improving bounds for the saturation numbers for their hypotenuses and areas using Archimedean sieve theory.

Special Note:
There will be a pre-talk for graduate students and postdocs from 2:15 - 2:45.

Host: Alireza Salehi Golsefidy

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