abstract

LIE GROUPS, REPRESENTATIONS AND DISCRETE MATH
Topic:

Speaker:

Affiliation:

Date:

Time/Room:

A finitely generated group is called a Golod-Shafarevich group if it has a presentation <X|R> with the following property:

There exists a prime number p and a real number $0<t_0<1$ such that $1-|X|t_0+\sum_{i=1}^{\infty}r_i t_0^i<0$ where r_i is the number of defining relators which have degree i with respect to the dimension p-series.

Golod-Shararevich groups are always infinite and moreover behave like free groups in many ways. On the other hand, it is not clear if a Golod-Shafarevich group must have "a lot of" finite quotients. The following is a well-known question of this type:

Is it true that Golod-Shafarevich groups never have property (τ)?

By a recent work of Lackenby, an affirmative answer to this question would have implied Thurston's virtual positive Betti number conjecture for arithmetic hyperbolic 3-manifolds. In this talk I will show that the answer to the above question is negative in general. Explicit examples of Golod-Shafarevich groups with property (τ) (in fact, (T)) are given by lattices in certain Kac-Moody groups over finite fields.