

Meeting: 1005, Newark, Delaware, SS 9A, Special Session on Arithmetic Groups and Related Topics

1005-20-57 **Martin Kassabov*** (kassabov@math.cornell.edu), Department of Mathematics, 310 Malott Hall, Ithaca, NY 14850, and **Nikolay Nikolov**. *New Examples of Groups with Property Tau*. Preliminary report.

I will describe joint work with N. Nikolov showing that the universal lattices have property tau. These are the first examples of non arithmetic groups with this property. In particular we show that the groups $SL_d(\mathbb{Z}[x_1, \dots, x_k])$ have property tau. Almost the whole proof can be generalized to the non-commutative analogs of these groups.

This generalization leads to several interesting applications: The Cayley graphs almost all finite simple groups can be made expanders using suitable generating sets. This allows us to disprove an old conjecture of Lubotzky and Weiss that an amenable group and a group with property tau can not be simultaneously dense subgroups of an infinite compact group. This construction also gives us a finite generated group having tau with very large subgroup growth. (Received January 24, 2005)