Martin Kassabov

Professor of Mathematics

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Ph.D. (2003) Yale University

Research Area

Combinatorial group theory

My research interests fall into two main categories: (1) representation theory of discrete groups, mainly Kazhdan property and property tau; (2) combinatorial algebra — applications of different combinatorial methods in abstract algebra.

The main part of my research is related to properties T and tau. These properties arise from the representation theory, and they have many applications in combinatorics.

Another part of my research can be broadly described as combinatorial algebra. My research interests are concentrated in the following topics: automorphism groups, Golod-Shafarevich groups, group rings.

Selected Publications

Universal lattices and property tau (with Nikolov, N.), Invent. Math. 165 (2006), no. 1, 209–224.

Symmetric groups and expander graphs, Invent. Math. 170 (2007), no. 2, 327–354.

Presentations of finite simple groups: a quantitative approach (with Guralnick, R. M., Kantor, W. M., and Lubotzky A.), J. Amer. Math. Soc. 21 (2008), no. 3, 711–774.

Presentations of finite simple groups: a computational approach (with Guralnick, R. M., Kantor, W. M., and Lubotzky, A.), J. Eur. Math. Soc. (JEMS) 13 (2011), no. 2, 391–458.

Subspace arrangements and property,T. Groups Geom. Dyn. 5 (2011), no. 2, 445–477.

Hairy graphs and the unstable homology of Mod(g,s), Out(Fn) and Aut(Fn) (with Conant, J. and Vogtmann, K.) . J. Topol. 6 (2013), no. 1, 119–153.

Groups of oscillating intermediate growth (with Pak, I.), Ann. of Math. *(2)* 177 (2013), no. 3, 1113–1145.

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