"Group Theory International" Online Seminar

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"Infinitely presented graphical small cancellation groups"

Thursday, December 10, noon (New York Time)

Graphical small cancellation theory is a tool for constructing finitely generated groups with prescribed subgraphs embedded in their Cayley graphs. In combination with probabilistic arguments, graphical small cancellation theory and its geometric variation have provided the only known counterexamples to the Baum-Connes conjecture with coefficients and the only known non-coarsely amenable groups.

I will present a purely combinatorial approach to graphical small cancellation theory, which is more general and allows more flexibility than prior interpretations. I will explain that this approach produces groups with coarsely embedded prescribed infinite sequences of finite graphs. Therefore, it yields groups with the properties mentioned above. I will discuss that the resulting infinitely presented groups are acylindrically hyperbolic (joint work with A. Sisto). This generalization of the notion of Gromov hyperbolicity has strong analytic, algebraic, and geometric implications. The arguments rely on the Euler characteristic formula for planar 2-complexes and on a characterization of Gromov hyperbolic graphs through linear isoperimetric inequalities.

Next presentation: Dec 17, Anton Klyachko *(Moscow State University)*

Algebraic Cryptography Center