Algebraic Cryptography Center

STEVENS Institute of Technology

Algebraic Cryptography Center Webinar

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A Geometric Zero-One Law

Thursday, September 24, 2009
9:00 am (EST)
Meeting Room: Click here

Abstract:
In this talk I am going to discuss asymptotic properties of finite subgraphs of the Cayley graph Γ of a fixed finitely generated group G. It turns out that finite subgraphs of Γ satisfy the classical Zero-One Law, i.e., for any first-order sentence ϕ of graph theory either ϕ or its negation $\neg\phi$ holds almost surely on finite subgraphs of Γ.

We approach this problem via random subgraphs of Γ – group-theoretic analogs of the classical Erdos-Rado's graphs. One of the key results is that the random subgraphs of Γ are all elementarily equivalent to each other, though not necessarily isomorphic. This brings some interesting connections with percolation theory on Cayley graphs.

This is a joint work with Robert Gilman and Yuri Gurevich.