Mathematics Colloquium
at IUB

ILYA KAPOVICH
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will speak

On algebraic rigidity of random quotients
of the modular group

Date: Monday, March 27, 2006
Time: 17:15
Place: Lecture Hall Research II, IUB

Abstract:
We show that for any positive integer \( m \geq 1 \), \( m \)-relator quotients of the modular group
\( M = \text{PSL}(2, \mathbb{Z}) = \langle a, b \mid a^2 = b^3 = 1 \rangle \) generically satisfy a very strong
Mostow-type isomorphism rigidity. In particular, we prove if two such quotients
are isomorphic then their Cayley graphs on the given generating set \( a, b \) are iso-
metric. This allows us to compute the precise asymptotics of the number \( I_m(n) \) of
isomorphism types of \( m \)-relator quotients of \( M \) where all the defining relators are
cyclically reduced words of length \( n \) in \( M \). We also prove that random quotients
of \( M \) are “essentially algebraically incompressible”, that is, they do not admit a
finite group presentation of length much shorter than the given one. This talk is
based on joint work with Paul Schupp.

Colloquium Tea at ca. 16:45 in the Tea Room of Research II, close to the
lecture hall. Everybody is welcome!