

Mathematics Colloquium

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**A New Proof of
Gromov's Theorem
on Groups of
Polynomial Growth**

Abstract: In 1981 Gromov showed that any finitely generated group of polynomial growth contains a finite index nilpotent subgroup. This has a variety of applications, ranging from dynamics to probability theory. Gromov's proof was based in part on a beautiful rescaling argument, and the Montgomery-Zippin solution to Hilbert's fifth problem on topological groups.

The purpose of the lecture is to describe a new, much shorter, proof of Gromov's theorem, based on harmonic maps instead of the Montgomery-Zippin theory. I will begin by reviewing the history of Gromov's theorem, and some of its applications.

Wednesday, October 28

4:00 pm

204 Smith Hall