
THE WEIZMANN INSTITUTE OF SCIENCE
FACULTY OF MATHEMATICS AND COMPUTER SCIENCE
Algebraic Geometry and Representation Theory Seminar

Room 1 ,Ziskind Building
on Wednesday, Apr 13, 2016at 11:15

please note change in room
Mark Shusterman Tel Aviv University

An elementary proof of Olshanskii's theorem on subgroups of a free group and its applications

Abstract:

I will present an elementary proof of the following theorem of Alexander Olshanskii:

Let F be a free group and let A, B be finitely generated subgroups of infinite index in F . Then there exists an infinite index subgroup C of F which contains both A and a finite index subgroup of B .

The proof is carried out by introducing a 'profinite' measure on the discrete group F , and is valid also for some groups which are not free. Some applications of this result will be discussed:

1. Group Theory - Construction of locally finite faithful actions of countable groups.
2. Number Theory - Discontinuity of intersections for large algebraic extensions of local fields.
3. Ergodic Theory - Establishing cost 1 for groups boundedly generated by subgroups of infinite index and finite cost.