ESI Erwin Schrödinger International Institute for Mathematics and Physics

universität wien

DVR 0065528

Programme on

"Measured Group Theory"

January 18 - March 18, 2016

organized by

Miklos Abert (Hungarian Academy of Sciences, Budapest), Goulnara Arzhantseva (U Vienna), Damien Gaboriau (ENS Lyon), Thomas Schick (U Göttingen), Andreas Thom (TU Dresden)

MINI-COURSE
"On the Graham Higman group"
by Prof. Lev Glebsky (U Autónoma de San Luis Potosí, Mexico)

- **Wednesday, January 20, 2016**

  10:00 – 12:00
- **Friday, January 22, 2016**

  10:00 – 12:00
- **Wednesday, January 27, 2016**

  10:00 – 12:00
- **Friday, January 29, 2016**

  10:00 – 12:00

Abstract
Let $H_{m,k} = \langle a_0, \dots, a_{m-1} \mid \{a_i^{-1} a_{i-1} a_i = a_{i-1}^k,\ i = 0, ..., m-1\}\rangle$, here $i-1$ is taken $\mod m$. In 1951 Graham Higman introduced the group $H_{4,2}$ as an example of a finitely presented infinite group without finite quotients. Recently, some researchers are speculating if the group $H_{4,2}$ could serve as an example of non-sofic group. During the lectures we study some properties of $H_{m,k}$ trying to answer how plausible these speculations are.

Topics to consider

- The groups $B(1,k) = \langle a, b \mid a^b = a^k\rangle \sim \mathbb{Z} \ltimes \mathbb{Q}_k$ and $\langle a_0, a_1, a_2 \mid a_1^{a_2} = a_1^k,\ a_2^{a_3} = a_2^k\rangle$ as 'building blocks' for $H_{m,k}$. Their properties.
- The G. Higman proof (in a little bit more general context) that $H_{4,2}$ has no finite quotients.
- $H_{m,k},\ k > 2,\ m > 4$ is not residually finite but nevertheless has a lot of finite p-quotients for $p|(k-1)$. Construction of pro-p 'extension' of $H_{m,k}$.
- $B(1,k)$ as a subgroup of $H_{m.k}$. Exponent-like modular functions.

All talks take place at the ESI, Boltzmann Lecture Hall!