Seminarium geometrów

Poniedziałek, 23.10.2023, 14:15 HS

Motiejus Valiunas (Uniwersytet Wrocławski)

Trace monoids and RAAGs in one-relator groups

Abstract: Given a finite simplicial graph Γ, the *right-angled Artin group (RAAG)* $A(\Gamma)$ is the group given by the presentation $\langle V(\Gamma) \mid vw = wv$ for $\{v, w\} \in E(\Gamma)\rangle$, and the *trace monoid* $T(\Gamma)$ is the monoid given by the same presentation. RAAGs and trace monoids play important roles in geometric group theory and theoretical computer science, respectively.

We consider embeddings of RAAGs and trace monoids in *one-relator groups*—groups given by a presentation $\langle x_1, \ldots, x_k \mid r \rangle$ for some $r \in F_k(x_1, \ldots, x_k)$. The latter class of groups have been widely studied throughout the past century, one important direction of study being decision problems. Recently, I. Foniqi, R. Gray & C.-F. Nyberg-Brodda studied embeddings of trace monoids in one-relator groups in order to construct one-relator groups with undecidable submonoid and prefix membership problems. In an attempt to describe one-relator groups with undecidable rational subset membership problem, the following question arose: does there exist a one-relator group G with $T(\Gamma) \leq G$ but $A(\Gamma) \nleq G$, when Γ is a path of length 3? In this talk, I will explain why the answer is "no", even if Γ is replaced by any finite tree.

This is joint work with Ashot Minasyan.

streaming via ZOOM:

Meeting ID: 967 6507 7409

Meeting password: "GS" (two letters) followed by the Euler characteristic of the closed orientable surface of genus 89.