

# Seminarium geometrów

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## Uniform lattices acting on RAAG complexes

Abstract: Recall that every right-angled Artin group  $G(\Gamma)$  with defining graph  $\Gamma$  acts on a canonical  $\text{CAT}(0)$  cube complex, which we denote by  $X(\Gamma)$ . Let  $H$  be a uniform lattice in the automorphism group of  $X(\Gamma)$ . We ask whether  $H$  and  $G(\Gamma)$  are commensurable. This is known if  $G(\Gamma)$  is free, since any group acting geometrically on a tree is virtually free. However, there are counterexamples by Burger-Mozes, and Wise, in the case where  $G(\Gamma)$  is a product of free groups. We will show if  $\Gamma$  contains an induced 4-cycle, then one can always find a uniform lattice  $H$  which is not commensurable to  $G(\Gamma)$ . Moreover,  $H$  can be non-residually finite. If time allows, I will also talk about the cases where the commensurability result holds.