

On the homology of twisted Brin-Thompson groups and Röver-Nekrashevych groups

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Abstract.

Thompson's group V was introduced in 1965 as a surprising group with counterintuitive properties (for example it is an infinite simple group with a finite presentation) which has inspired many generalisations. Amongst these, we will consider (i) a family of infinite-dimensional analogues (the *twisted Brin-Thompson groups*) twisted by a group action on the coordinates and (ii) a family of one-dimensional analogues $V(G)$ (the *Röver-Nekrashevych groups*) twisted in a different way by a self-similar group G .

About 10 years ago, M. Szymik and N. Wahl resolved a long-standing open problem by proving that Thompson's original group V is acyclic, i.e. it has the integral homology of the trivial group. I will first describe a generalisation of their result to all twisted Brin-Thompson groups, using different methods (étale groupoids and their homology), which has interesting group-theoretic consequences. I will then describe work in progress towards a uniform calculation of the integral homology of all Röver-Nekrashevych groups $V(G)$, where the answer is more complicated, as they are almost always non-acyclic. If time permits, I will describe the answer for specific examples of self-similar groups G , such as the Grigorchuk group or the binary odometer group. This represents joint work with Xiaolei Wu, partially based on [arXiv:2510.16879](https://arxiv.org/abs/2510.16879).