Embedding groups into acyclic groups via étale groupoids

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Abstract.

The Thompson group V is the group of automorphisms of Cantor space respecting a certain tree-like structure. It has inspired a plethora of "Thompson-like" groups building on this prototype, which are important objects of study in group theory, providing examples of groups with unexpected properties. In particular, there is a *labelled Thompson group* $\mathrm{V}(G)$ for every group G and a *twisted Brin-Thompson group* $S\mathrm{V}_G$ for every faithful action of a group G on a set S.

I will describe recent joint work with Xiaolei Wu in which we prove that all of these groups are acyclic, i.e. their homology is trivial in all degrees, extending a theorem of M. Szymik and N. Wahl who proved that the original Thompson group V is acyclic. This has many consequences for group embeddings: for example every group of finiteness type F_n embeds into an acyclic group of the same finiteness type (extending results from the early 80s for $n = 1$ and $n = 2$). Our methods use a recent theorem of X. Li that relates acyclicity of topological full groups to the homology of étale groupoids.