ABSTRACT:

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Cube complexes and group theory

We will explore the geometry and topology of CAT(0) cube complexes and see how their geometry has various ramifications for groups which act them, particularly those that act properly and cocompactly . We will see that their "treelike" behavior has implications for the existence of free subgroups and rank 1 elements. We will also discuss particular types of complexes, called special cube complexes, in the context of subgroup separability and the connection with fundamental groups of 3-manifolds.