

ORBISPACES, CONFIGURATIONS AND QUASI-FIBRATIONS

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The heart of this thesis tries to extend previous ideas about homological stability of configuration spaces on manifolds to the setting of orbifolds. When using the topological groupoid definition for an orbifold, there is a natural way to define the analogue of a configuration space.

Given an orbifold with boundary, the document works through defining a map which adds points to a configuration on its interior. This map is proved to induce an injective map on integral homology. With this result in hand, homological stability becomes the goal. While such a result does not appear in this work, some intermediary results do appear. Using a quasi-fibration criterion that is presented within, the hope is that this will form the foundations of future work in finding the stable homology for these objects.

Also appearing here is some investigative work on the Salvetti complex. Looking at the specific case for the pure braid group, the document presents a concrete way to represent the Salvetti complex simplicially. The techniques here are then used in a reference Betti number calculation implementation, coded in Python.

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