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Surface Complexes of Seifert Fibred Spaces

Incompressible surfaces in Seifert fibred spaces

Assume orientability

Seifert surfaces are representatives $\alpha \in H_2(S^3, K)$ (see "swallow - follow" Knots)

Defn: Kakimizu complex, has one vertex for each isotopy class of seifert surface; simplices span pairwise disjoint surfaces

Thm: It is connected; it's a flag mfd

Thm: $K(A+B) = K(A) \oplus K(B) \oplus \mathbb{Z}$?

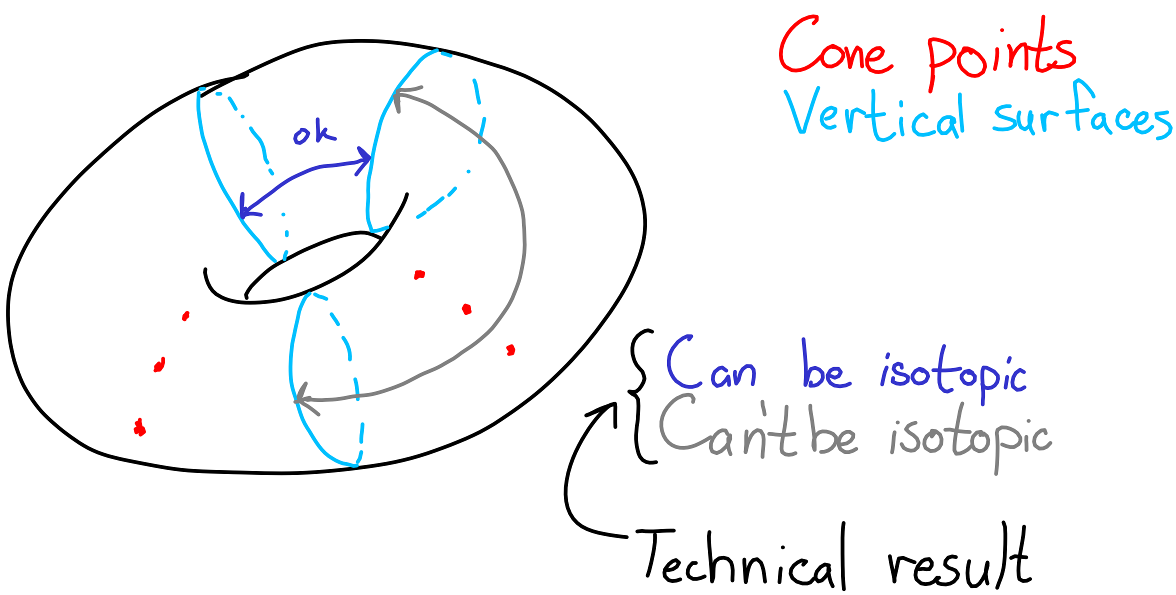
Thm: $K(A) \simeq pt$ for A a knot and "quasi-euclidean"

Main tool: infinite cyclic covers

↳ Intersection #'s in cover correspond to lengths of shortest paths in base

Can generalize to 3-mfds using more technical defns, then same arguments work

Look at orbifold torus



Look at torus complex (Finegold)

Has diameter 2, recovers "curve complex"

<u>Thm</u>: If M is a totally orientable Seifert with $\chi = 0$, $g(\text{Base}) > 0 \Rightarrow \exists C \subseteq S(M)$, $C \cong$ a curve complex