

SEMINÁRIO DE ÁLGEBRA

Homological detection of state graphs

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Abstract.

Given a link $K \subset S^3$ and a diagram $D(K)$, the choice of a resolution at each crossing of $D(K)$ is called a σ -state. Each state σ yields a surface S_σ , whose boundary is K , and a labeled graph G_σ , which is a spine for S_σ . A question of interest is whether these surfaces are fibers for $S^3 - K$. A theorem of Stallings' shows this is obtained from a map between the fundamental groups of S_σ and $S^3 - S_\sigma$. We show how the fibering information is also encoded in the graph G_σ and present a simple homological obstruction for fibration. Moreover, we show how to recover the state graph/surface from the matrix given by the homology map.