

Fundamental class and invariants of representations

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Consider representations $\rho: \pi_1 M \rightarrow GL(n, \mathbb{C})$ of the fundamental group of a compact, aspherical manifold. Some topological invariants like the volume and the Chern-Simons invariant can be computed by looking at $(B\rho)_* [M] \in H_*(GL(n, \mathbb{C}))$, that is, the image of the fundamental class $[M] \in H_*(M)$ in the homology of the general linear group. We will discuss topological properties of such invariants, in particular their invariance under mutation.