

TOPOLOGY SEMINAR

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Hyperbolic manifolds, algebraic K-theory and the extended Bloch group

Tuesday, October 6th. 4:00 in 383-N

Abstract: A closed hyperbolic 3-manifold M determines a fundamental class in the algebraic K -group $K_3^{\text{ind}}(\mathbb{C})$. There is a regulator map $K_3^{\text{ind}}(\mathbb{C}) \rightarrow \mathbb{C}/4\pi^2\mathbb{Z}$, which evaluated on the fundamental class recovers the volume and Chern-Simons invariant of M . The definition of the K -groups is very abstract, and one is interested in more concrete models. The extended Bloch group is such a model. It is isomorphic to $K_3^{\text{ind}}(\mathbb{C})$ and has several interesting properties: Elements are easy to produce; the fundamental class of a hyperbolic manifold can be constructed explicitly; the regulator is given explicitly in terms of a polylogarithm.