

Chern-Simons invariant on infinite volume manifolds and Bergman tau function

Andrew McIntyre*

amcintyre@bennington.edu

I will briefly outline a construction of a Chern-Simons invariant of the tangent bundle for a certain class of infinite volume hyperbolic 3-manifolds, generalizing work of Meyerhoff and Yoshida for cusped hyperbolic 3-manifolds. This invariant forms the imaginary part of a natural complexification of the regularized volume (boundary Liouville action) for such manifolds. The resulting invariant has an unexpected (to us) relation to the Bergman tau function introduced by Kokotov and Korotkin, which I will explain.

This is joint work with Jinsung Park (Korea Institute for Advanced Study).

*Department of Mathematics, Bennington College, 1 College Drive, Bennington, VT 05201, USA.