1060-57-186   **Christian Krogager Zickert*** (`zickert@math.berkeley.edu`), CA. *On the volume and Chern-Simons invariant.*

A hyperbolic 3-manifold defines an element in the extended Bloch group, an object introduced by Walter Neumann. Evaluating a version of Rogers dilogarithm on this element gives the volume and Chern-Simons invariant of the manifold. We describe a new way of constructing the extended Bloch group element, giving rise to a very fast algorithm for computing the volume and Chern-Simons invariant. The method generalizes to a formula for the volume and Chern-Simons invariant of representations of 3-manifold groups. (Received March 29, 2010)