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"Abelianization in classical Chern-Simons theory"

Abstract: I will describe a new perspective on complex classical Chern-Simons theory with gauge group $G = \text{SL}(N,\mathbb{C})$. This new perspective gives a method of computing the classical Chern-Simons invariants of flat connections over 3-manifolds, as well as the "Chern-Simons lines" of flat connections over 2-manifolds. The basic strategy is to relate $\text{SL}(N,\mathbb{C})$ Chern-Simons theory on $X$ to $\text{GL}(1,\mathbb{C})$ Chern-Simons theory on a different spacetime $Y$, which arises as an $N$-fold branched cover of $X$. This is joint work in progress with Dan Freed.