The Localized Skein Algebra of a Closed Surface is Frobenius.

If $K_N(F)$ is the Kauffman bracket skein algebra of a closed surface $F$ where the $N$ denotes the fact that $A = e^{\pi i/N}$, $N$ an odd counting number, then it is a ring extension of the coordinate ring of the $SL_2\mathbb{C}$-character variety of the fundamental group of $F$. Extending work of Abdiel and Frohman, we localize $K_N(F)$ by inverting the nonzero characters to get an algebra over the function field of the character variety of $F$. We prove this algebra is Frobenius. The technique of proof is to lift the problem to a punctured surface, and show that the results there imply the result for a closed surface. The proof requires defining a refinement of the trace appearing in Abdiel-Frohman, arXiv:1501.02631. (Received January 14, 2015)