
MELISSA MACASIEB, The University of British Columbia
Character varieties of a family of 2-bridge knot complements

To every hyperbolic finite volume 3-manifold M , one can associate a pair of related algebraic varieties $X(M)$ and $Y(M)$, the $\mathrm{SL}_2(\mathbb{C})$ - and $\mathrm{PSL}_2(\mathbb{C})$ -character varieties of M . These varieties carry much topological information about M , but are in general difficult to compute. If M has one cusp, then both these varieties have dimension one. In this talk, I will also show how to obtain explicit equations for the character varieties associated to a family of hyperbolic two-bridge knots $K(m, n)$ and discuss consequences of these results related to the existence of integral points on these curves.

This is joint work with Kate Petersen and Ronald van Luijk.