

Topology Seminar

Kathryn Mann

of Brown University will be speaking on

New progress on spaces of foliated bundles and nonlinear character varieties

on November 27 at 4:30 in
MIT Room 2-131

A flat M -bundle is a topological (or smooth) M -bundle with a foliation transverse to the fibers; these are classified by the classifying spaces for $\text{Homeo}(M)$ or $\text{Diff}(M)$ with the discrete topology. In this talk, I will describe an alternative approach to their study, introducing nonlinear analogs of character varieties for representations of discrete groups to groups of homeomorphisms or diffeomorphisms. Our motivation comes from the case of $M = S^1$, where character spaces have a natural interpretation through dynamical invariants of group actions.

In new joint work with M. Wolff, we use this perspective to characterize the isolated points of the character space for representations of surface groups into $\text{Homeo}(S^1)$. Remarkably, these points are precisely the geometric representations, coming from an embedding of the group into a lattice in a Lie subgroup of $\text{Homeo}(S^1)$. This gives a new instance of the classical dynamical theme of rigidity of lattice actions, and progress towards an h -principle for transversely projective codimension 1 foliations.