

Mapping class group invariant parameterizations of maximal $\mathrm{PSp}(4, \mathbb{R})$ representations

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The moduli space of representations of the fundamental group of a closed surface S into a Lie group G is a very rich object. For instance, this moduli space carries an action of the mapping class group and, if $G = \mathrm{PSL}(2, \mathbb{R})$, there is a connected component of this moduli space which is isomorphic to Teichmüller space. In this talk we will use harmonic map theory and Higgs bundles to study generalizations of Fuchsian representations called maximal representations. These tools however depend on fixing a Riemann surface structure on S , and thus break the mapping class group symmetry. We will discuss how one can restore this symmetry for the group $\mathrm{PSp}(4, \mathbb{R})$ by proving a statement which is analogous to an important conjecture of Labourie concerning Hitchin representations.