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Deformation spaces of surface group representations.

This talk will survey actions of automorphism groups on moduli spaces. Let π be the fundamental group of a compact surface S and let G be a Lie group. Then $\text{Hom}(\pi, G)$ is an analytic variety upon which $\text{Aut}(\pi) \times \text{Aut}(G)$ acts. The *outer automorphism group* $\text{Out}(\pi)$ acts on the quotient $\text{Hom}(\pi, G)/G$. When $\partial S = \emptyset$, then $\text{Out}(\pi)$ is the mapping class group of S . We shall compare and contrast cases of when the action of $\text{Out}(\pi)$ is chaotic (when G is compact) and when the action is tame (such as the action on Teichmüller space, when $G = \text{PSL}(2, R)$). (Received September 26, 2004)