

1046-57-1191

William M. Goldman* (wmg@math.umd.edu), Department of Mathematics, University of Maryland, College Park, MD 20742, and **Eugene Z. Xia** (ezxia@ncku.edu.tw), Division of Mathematics, National Center for Theoretical Science, National Cheng-Kung University, Tainan 701, Taiwan. *Ergodicity of subgroups of mapping class groups on $SU(2)$ -character varieties.*

Let Σ be a compact oriented surface with fundamental group π . Its mapping class group $\Gamma := \text{Mod}(\Sigma)$ acts on the character varieties $X := \text{Hom}(\pi, SU(2))/SU(2)$ and $X_{\mathbb{C}} := \text{Hom}(\pi, SL(2, \mathbb{C}))/SL(2, \mathbb{C})$ preserving a symplectic (respectively complex-symplectic) structure. We show that Γ acts ergodically on X by relating Dehn twists τ_c about simple closed curves $c \subset \Sigma$ in Γ to generalized twist flows, which are Hamiltonian flows of trace functions f_c .

More generally, let S be a set of simple closed curves on Σ . Then the subgroup Γ_S generated by τ_c , for $c \in S$ acts ergodically on X whenever the functions f_c , for $c \in S$, generate the coordinate ring of $X_{\mathbb{C}}$. We apply these ideas when S consists of separating simple closed curves and Γ_S is the corresponding subgroup of the Johnson-Torelli group. (Received September 15, 2008)