

Maximal tori are central in the theory of compact Lie groups. A basic theorem asserts that all these tori are conjugate. For diffeomorphism groups, this theorem cannot hold since conjugacy classes of maximal tori correspond to geometrically distinct torus actions, and compact manifolds such as $S^2 \times S^2$ admits infinitely many maximal T^2 -actions. However, we will see that on a symplectic 4-manifold, there are only finitely many conjugacy classes of maximal tori in the infinite dimensional group of Hamiltonian diffeomorphisms. This result gives an other indication that symplectomorphism groups are, to some extent, infinite dimensional analogs of compact Lie groups. The proof uses two main ingredients: Delzant's theory of toric manifolds and Gromov's theory of J -holomorphic curves.