

SYMPLECTIC CHARACTERISTIC CLASSES

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A compact symplectic manifold (M, ω) possesses a very interesting group of structure preserving diffeomorphisms. When M is simply connected, the identity component of this group consists of Hamiltonian isotopies (each generated by a time dependent function on the manifold) and so is called the Hamiltonian group $\text{Ham}(M)$. Though this group is infinite dimensional, it is significantly smaller than the full group of diffeomorphisms of M and supports several characteristic classes that one can use to probe its topology.

This talk will explain several examples; for example the use of the action homomorphism to understand $\pi_1 \text{Ham}(M)$ for a toric manifold M (joint work with Sue Tolman) and the use of the coupling classes and various Gromov–Witten classes to understand the homotopy of $\text{Ham}(M)$ when M is a blow up.

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