1120-53-208   **Susan Tolman** and **Jordan Watts*** (`jordan.watts@colorado.edu`), Department of Mathematics, Campus Box 395, Boulder, CO 80309. *Tame circle actions.*

A famous question of Dusa McDuff, the so-called "McDuff Conjecture", asks whether there exists a non-Hamiltonian symplectic circle action with isolated fixed points on a compact symplectic manifold. Susan Tolman recently answered this question in the affirmative, constructing a 6-dimensional such space with exactly 32 fixed points. A crucial ingredient to this construction involves Hamiltonian circle actions on complex manifolds and orbifolds in which the interaction between the complex structure and the symplectic form is fairly weak. Specifically, versions of the holomorphic slice theorem, the birational equivalence theorem, as well as reduction, cutting, and blow-up (all of which work in the Kaehler world) are required in this weaker setting.

All of these theorems and constructions are extended to this weaker setting in joint work by Tolman and myself. By weak, we mean a positivity condition involving the infinitesimal circle action, the symplectic form and the complex structure on the complement of the fixed point set. This condition is sufficient for almost all of the theorems and constructions above. In this talk, I will focus on a few of the constructions that appear in the joint paper. (Received February 22, 2016)