

I will report on a joint work with S. Brandhorst concerning non-symplectic automorphisms of odd prime order on irreducible holomorphic symplectic manifolds. We explain how to classify, in lattice-theoretical terms, pairs (X, G) with X IHS and G a group of non-symplectic automorphisms of prime order on X , up to deformation and conjugation by birational morphisms. This widely generalizes known results on IHS manifolds deformation equivalent to Hilbert schemes of points on K3 surfaces. The key ingredient in our approach is a classification of conjugacy classes of prime order isometries of unimodular lattices.