Abelian groups act symplectically on K3 surfaces in a unique way: therefore, there is a bijection between the moduli spaces of K3 surfaces X with a symplectic action of $G=(Z/2Z)^2$, Z and Y that arise as resolution of singularities of X/i (where i is a symplectic involution in G), and X/G respectively.

When we ask X to be projective, these moduli spaces split in countable irreducible components, and while the bijection between those of X and Y is preserved, this does not hold for Z. More surprisingly, there are (general) choices of the polarization L of X such that the two generators of G act differently on L, providing intermediate quotients that naturally live in different projective spaces. I will explain this phenomenon and provide an explicit example.