Valery Alexeev:Â **Concrete functorial compactifications of moduli of K3 surfaces**

Typically in compactification problems there are two approaches: functorial, by adding some "stable" objects on the boundary, and combinatorial, e.g. toroidal compactifications. Sometimes they happily meet: classically for curves but also for abelian varieties where the moduli of stable pairs (X,B) matches the toroidal compactification for the 2nd Voronoi fan.

In this work, joint with Alan Thompson, we investigate whether two approaches match for moduli spaces of polarized K3 surfaces of low degree. In particular, in degree 2 we match a specific toroidal compactification to a moduli space of stable pairs (X,B) for a particular choice of divisor B.Â

I will also briefly discuss the work of Adrian Brunyate who investigated this question in the case of elliptic K3 surfaces.