

Theta functions for K3 surfaces

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Abstract:

Andrei Tyurin conjectured the existence of a canonical basis of global sections for an ample line bundle on a K3 surface, analogous to theta functions for abelian varieties. I'll describe joint work with Gross, Keel, and Siebert where we use ideas from mirror symmetry to prove the conjecture for K3 surfaces near a cusp of the moduli space. The construction is based on the tropicalization of the mirror K3 and its scattering diagram encoding counts of holomorphic discs with Lagrangian boundary conditions.