A proof of Morrison's Conjecture
Helge Ruddat (Mainz)

Morrison conjectured that mirror symmetry dualizes conifold transitions of Calabi-Yau threefolds. Since mirror symmetry is a phenomenon at a maximally unipotent boundary point of the Calabi-Yau moduli space, in order to prove the conjecture, one needs a theory combining conifold transitions with maximal degenerations. I will report on joint work with Siebert where we produce such a theory by giving a comprehensive account on conifold transitions in the Gross-Siebert program. We exhibit tropical homology groups that control the obstructions la Friedman-Tian and Smith-Thomas-Yau and that are naturally identified via discrete Legendre transform alias mirror symmetry. This proves Morrison's conjecture.