

Donaldson-Thomas invariants of toric quivers

The category of sheaves on a toric threefold is derived equivalent to the category of representation of a quiver with potential obtained from a brane tiling of the torus. On this class of examples, the numerical DT invariants can be computed by toric localization with respect to an action scaling the arrows of the quiver, by enumerating the fixed points, described combinatorially by pyramid partitions.

A toric localization formula was proposed by the K-theoretic DT formalism in order to compute refined DT invariants, but these computations were shown not to agree with computations of the cohomological refinement provided by the vanishing cycles even in the simplest cases. We present here how to interpret and solve this mismatch, using an equivalent of the Bialynicky Birula decomposition for critical locus of potential. DT invariants for toric threefolds without compact divisors are completely classified, but those of toric threefolds with compact divisors are generally expected to be wild. We present a conjectural formula for attractor invariants of any toric quivers, elementary bricks from which all the DT invariants can be built, corresponding to initial data of the stability scattering diagram of the quiver. We will prove this formula for P^2 , the simplest example with compact divisor.

Orateur: DESCOMBES, Pierre (LPTHE, Sorbonne U)