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## Motivic invariants of isolated singularities

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Searching mirror-partners of Calabi–Yau varieties is one of the problems in theoretical physics, which has led to discussing their invariants in algebraic geometry. Since a mirror partner of a nonsingular variety is not necessarily smooth, Hodge numbers (and the derived invariants like Betti-numbers, Euler number) may depend on a resolution of singularities.

An appropriate notion are so called stringy invariants : A basic technique to study them is the theory of motivic integration, taking values in Kontsevich’s completed Grothendieck ring.

Batyrev associated to an isolated singularity with a log-terminal resolution stringy invariants like stringy Hodge numbers and the string-theoretic Euler number. They can be determined for configurations of special types of isolated singularities on a variety. Some examples are discussed here, mainly for 3-dimensional simple singularities (ADE-singularities). One of the results is an answer to a question of Batyrev concerning the range of the string-theoretic index.

In a recent paper, J. Schepers shows that Batyrevs conjecture on positivity of stringy Hodge numbers holds for a large class of varieties.