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Donaldson–Thomas and Gromov–Witten invariants of orbifolds and their crepant resolutions

A well known principle in physics asserts that string theory on an orbifold X is equivalent to string theory on Y , any crepant resolution of X . Donaldson–Thomas and Gromov–Witten theory are mathematical counterparts of type IIA and type IIB topological string theory and so it is expected that one can recover the Gromov–Witten or Donaldson–Thomas invariants of Y from those on X . We will mathematically formulate and discuss these correspondences and illustrate them with some examples.