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Ext and Tor on two-dimensional cyclic quotient singularities

The geometry of two-dimensional cyclic quotient singularities is deeply connected with the associated continued fractions, as discovered by Riemenschneider. This connection has been exploited for studying e.g. the monodromy and deformations of cyclic quotient singularities. In this talk we will show how this connection appears when computing Ext of two torus invariant Weil divisors on a cyclic quotient singularity. If one uses the Tor functor instead of Ext, one observes almost the same structure as for Ext. This leads to a new connection between Ext and Tor, thereby also connecting Tor with the associated continued fractions.

As an application one can compute generators of the global sections of the sheaf of a torus-invariant Weil divisor from the continued fraction.