

Meeting: 1002, Pittsburgh, Pennsylvania, SS 9A, Special Session on Multivariate Hypergeometric Functions: Combinatorial and Algebro-Geometric Aspects

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On computing the characteristic cycles of localizations. Preliminary report.

For a polynomial ring $R = k[x_1, \dots, x_n]$, we present an algorithm for computing the characteristic cycle of the localization $R_f = R[f^{-1}]$ for any polynomial $f \in R$. Working in the (commutative) polynomial ring in $2n$ variables, our method avoids the direct computation of R_f , which involves the (noncommutative) Weyl algebra.

In certain cases, the knowledge of characteristic cycles of the localizations leads to information about the characteristic cycles of the local cohomology modules $H_i^j(R)$, therefore, answering questions about vanishing/non-vanishing of these modules. (Received September 04, 2004)