

Local cohomology supported at determinantal ideals

Anurag K. Singh
Univ. of Utah

Abstract:

Abstract: We discuss ongoing joint work with Lyubeznik and Walther on local cohomology modules of rings of polynomials with integer coefficients, supported at generic determinantal ideals. A key new result is that such local cohomology modules have no integer torsion; in fact, aside from one exceptional index, these modules are rational vector spaces. The proofs use D-modules in prime characteristic, equal characteristic zero, and in mixed characteristic.

As an application, we obtain sharp vanishing theorems for local cohomology supported at ideals of minors of arbitrary matrices over Noetherian rings.