XAVIER GÓMEZ MONT, Centro de Investigación en Matemáticas (CIMAT)
The Homological Index of a Vector Field on an Isolated Complete Intersection Singularity

Given a commutative square of finite free $\mathcal{O}$-modules, we construct a double complex of $\mathcal{O}$-modules, that we have called the Gobelin. (A Gobelin is a richly embroidered French wall tapestry.) The Gobelin is weaved with vertical and horizontal strands of the Buchsbaum–Eisenbud type, constructed each from a Koszul complex of half of the commutative square. We apply the Gobelin to compute the homological index of a germ of a holomorphic vector field on a complete intersection variety, having both an isolated singularity. The first spectral sequence of the Gobelin provides free resolutions of the modules of Kähler differential forms on the complete intersection, and for small degree the homology of the Gobelin coincides with the homology of the complex obtained by contracting differential forms on the complete intersection with the vector field. The second spectral sequence of the Gobelin provides formulas to compute the homology groups of the Gobelin with local linear algebra.