

Residual intersections and Witt-valued Euler numbers

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Report on joint work with Kirsten Wickelgren. Let $K = J : I$ be a (local) residual intersection satisfying appropriate hypotheses. We show that the conormal module J/JK is free and use this to exhibit a *canonical* isomorphism between I^{t+1}/JI^t twisted by the determinant of J/KJ and the canonical module (the derived dual of R/K). Using this we determine the canonical modules of global residual intersections. As an application we show how to interpret the van Straten–Warmt form of an almost complete intersection as arising via algebraic surgery from the Koszul complex. This yields a new local formula in quadratic enumerative geometry.