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Singular

SINGULAR is a computer algebra system for polynomial computations with emphasize on the special needs of commutative algebra, algebraic geometry, and singularity theory.
SINGULAR's main computational objects are polynomials, ideals and modules over a large variety of rings. SINGULAR features one of the fastest and most general implementations of various algorithms for computing Groebner resp. standard bases. Furthermore, it provides (multivariate) polynomial factorizations, resultant, characteristic set and gcd computations, syzygy and free-resolution computations, and many more related functionalities. Based on an easy-to-use interactive shell and C-like programming language, SINGULAR's internal functionality is augmented and user-extendible by libraries written in the SINGULAR programming language (including primary decomposition, normalization, invariant rings and versal deformations). A general and efficient implementation of links as endpoints of communications allows SINGULAR to make its functionality available to and be easily incorporated into other programmes.