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Generalized Hilbert functions and normalization of ideals.

Let (R, m) be a Noetherian local ring and I an R -ideal. One defines the generalized Hilbert function and generalized Hilbert coefficients of I using the 0-th local cohomology functor. In joint work with Colome-Nin, Polini and Ulrich, we study the properties of generalized Hilbert functions and use the first generalized Hilbert coefficient to bound the the number of steps of algorithms that build the integral closure of I . (Received December 03, 2012)