1092-13-257 **G Colome-Nin**, **C Polini**, **B Ulrich** and **Y Xie*** (xieyucn@gmail.com). *Normalization of ideals.* Preliminary report.

Let R be a Noetherian local ring and I an ideal. Recall the normalization of I is $\bar{R[It]}$, the integral closure in $R[t]$ of the Rees algebra $R[It]$. This construction is a standard step in the theory of desingularization. One can also use $\bar{R[It]}$ to build the integral closure $\bar{I}$ of I (indeed, $\bar{I}$ is the degree one component of $\bar{R[It]}$). It is very important that there are numerical measures to tell the two algebras $R[It]$ and $\bar{R[It]}$ apart. Polini, Ulrich and Vasconcelos used the first Hilbert coefficient (defined only for ideals that are primary to the maximal ideal) to bound the number of steps of any algorithm that builds $\bar{R[It]}$ by a succession of graded extensions satisfying Serre's condition S_2. In this talk, we are going to see how these results are generalized to ideals that are not necessarily primary to the maximal ideal. (Received August 11, 2013)