1011-13-257 **Louiza Fouli*** (lfouli@math.purdue.edu), Department of Mathematics, 150 North University Street, West Lafayette, IN 47907-2067. *The core of ideals in arbitrary characteristic.* Preliminary report.

Let R be a Noetherian local ring with infinite residue field k and I an R-ideal. The core of I, core(I), is defined to be the intersection of all (minimal) reductions of I. Under some technical conditions (which are automatically satisfied in case I is equimultiple) Polini and Ulrich have shown that for a Gorenstein local ring,

$$J^{n+1} : I^n \subset \operatorname{core}(I) \subset J^{n+1} : \sum_{y \in I} (J, y)^n$$

for $n >> 0$, and J a minimal reduction of I. This holds in any characteristic. They also show that if $\operatorname{char} k = 0$ or $\operatorname{char} k >> 0$, then $\operatorname{core}(I) = J^{n+1} : I^n = J^{n+1} : \sum_{y \in I}(J, y)^n$ for $n >> 0$. We present an example where $\operatorname{char} k = 2$ and $\operatorname{core}(I) \neq J^{n+1} : \sum_{y \in I}(J, y)^n$. On the other hand, we show that if R is a positively graded Gorenstein reduced k-algebra (k an infinite perfect field) and I is an R-ideal generated by forms of the same degree then $\operatorname{core}(I) = J^{n+1} : I^n$ in any characteristic. Part of this work is joint with Claudia Polini and Bernd Ulrich.

(Received August 29, 2005)