1057-13-452 **Louiza Fouli*** (lfouli@math.nmsu.edu), Department of Mathematical Sciences, New Mexico State University, P. O. Box 30001, Dept 3MB, Las Cruces, NM 88003, and **Janet C Vassilev** and **Adela Vraciu**. *Tight closure and reductions of an ideal.*

Let R be a Noetherian ring and let I be an ideal. Recall that J is a reduction of I if $J \subset I$ and $\overline{J} = \overline{I}$, where $\overline{I}$ and $\overline{J}$ denote the integral closure of I and J, respectively. Northcott and Rees proved that if R is a Noetherian local ring with infinite residue field then there are infinitely many reductions of I. The core of I, core(I), is defined to be the intersection of all reductions of I.

When R is a Noetherian ring of characteristic $p > 0$, Epstein defines tight closure reductions. In particular, an ideal J is a $*$-reduction of I if $J \subset I$ and $J^* = I^*$, where * denotes the tight closure of the corresponding ideal. Similarly we define the tight closure core of I, $*$-core(I), to be the intersection of all the $*$-reductions of I. We explore $*$-reductions, $*$-core(I) and its connection to core(I). We also provide formulas for computing $*$-core(I). This is joint work with Janet C. Vassilev and Adela Vraciu. (Received January 26, 2010)