1047-13-135 **Yongwei Yao*** (yyao@gsu.edu), Department of Mathematics and Statistics, Georgia State University, Atlanta, GA 30303. *Uniform test exponents for rings of finite F-representation type.*

Let R be a Noetherian ring of prime characteristic p. Then, for every R-module M and every $q = p^e$ with $e \in \mathbb{N}$, there is a derived R-module structure on $\langle M, + \rangle$ whose scalar multiplication $\cdot$ is defined by $r \cdot m = r^{p^e} m$. We denote the derived module structure by ${}^e M$. We say M has *finite F-representation type* (FFRT for short) if there exist finitely many finitely generated R-modules, say $N_1, \ldots, N_r$, such that for every $q = p^e$, there are $n_{q,1}, \ldots, n_{q,r} \in \mathbb{N}$ with

$$ {}^e M \cong N_1^{\oplus n_{q,1}} \oplus N_2^{\oplus n_{q,2}} \oplus \cdots \oplus N_r^{\oplus n_{q,r}} $$

as R-modules. For example, polynomial rings of finitely many variables over F-finite (e.g., perfect) fields have FFRT.

It is known that if there exists a finitely generated R-module M with FFRT such that $\mathrm{Supp}(M) = \mathrm{Spec}(M)$, then tight closure commutes with localization. In this talk, we show that, under the same assumption as above, there are uniform test exponents (for tight closure) for all R-modules. (Received January 25, 2009)