1092-13-360 **Florian Enescu** (fenescu@gsu.edu) and **Yongwei Yao*** (yyao@gsu.edu), Department of Math & Stat, Georgia State University, Atlanta, GA 30303. *The Frobenius Complexity.* Preliminary report.

Let R be a commutative ring with prime characteristic p. For any R-module M, there is *algebra of Frobenius operators*

$$\mathcal{F}(M) := \oplus_{e\geq 0}\mathcal{F}^e(M)$$

in which $\mathcal{F}^e(M)$ consists of all $\mathbb{Z}$-linear maps $h\colon M \to M$ such that $h(rm) = r^{p^e}h(m)$ for all $r \in R$ and $m \in M$. A very interesting case is when $M = E := E_R(R/\mathfrak{m})$ over a local ring $(R, \mathfrak{m})$; and there are several ways to interpret the ring $\mathcal{F}(E)$.

As $\mathcal{F}(E)$ may not be finitely generated over $\mathcal{F}^0(E)$ in general, we would like to find ways to measure how far away $\mathcal{F}(E)$ is from being finitely generated over $\mathcal{F}^0(E)$. In particular, we define the *Frobenius complexity* of $\mathcal{F}(E)$.

Moreover, cases of low dimension are examined. Some concrete examples are computed. This is joint work with Florian Enescu. (Received August 13, 2013)