1092-14-336 **Justin D. Peachey*** (jupeachey@davidson.edu). *Applications of function fields arising from certain linearized polynomials to compressed sensing.*

In 2012, Li, Gao, Ge, and Zhang constructed compressed sensing matrices from codes from the Hermitian function field. These matrices provided better parameters than previous deterministic constructions. The extended norm-trace function field $\mathbb{F}_{q^r}(x,y)/\mathbb{F}_{q^r}$ is defined by

$$x^u = L(y),$$

where $L(y) = \sum_{i=0}^{d} a_i y^{q^i}$ is a linearized polynomial with $a_0, a_d \neq 0$, and q^d distinct roots in $\mathbb{F}_{q^r}$. This function field generalizes both the norm-trace function field and the Hermitian function field.

Our work has yielded explicit bases for certain Riemann-Roch spaces of this function field. In this talk, we explore the applications of the resulting algebraic geometric codes to construction of compressed sensing matrices using the construction of Li, et al. We discuss when our results can yield better parameters than those previously known. (Received August 13, 2013)