1086-11-266 **Holley A Friedlander*** (holleyf@math.umass.edu), Department of Mathematics and Statistics, Lederle Graduate Research Tower, Amherst, MA 01003. *Twisted Weyl group multiple Dirichlet series over the rational function field.* Preliminary report.

Let K be a global field and Φ a reduced root system of rank r. Let $n \geq 1$ be an integer so that K contains all $2n^{th}$ roots of unity. A degree n Weyl group multiple Dirichlet series of type Φ for K is a Dirichlet series in r complex variables with meromorphic continuation to $\mathbb{C}^r$ satisfying a group of functional equations isomorphic to the Weyl group of Φ. Such series conjecturally arise as Whittaker coefficients of Eisenstein series on metaplectic groups and are a tool for performing certain estimates in analytic number theory.

This poster considers the case when K is an algebraic function field defined over a finite field. We first define twisted Weyl group multiple Dirichlet series, which are rational functions in several variables in this case. We then describe a new analogy between these rational functions and characters of representations of the Lie algebra associated to Φ. In particular, we show that when K is the rational function field these rational functions may be written uniquely as a weighted sum over "irreducible" elements. This result is part of a broader goal to understand how these rational functions encode the combinatorics of Φ and the geometry of K. (Received August 14, 2012)