1023-12-719   **David R. Hayes*** (`cftheorie@aol.com`), Dept. of Math/Stat, University of Massachusetts at Amherst, Amherst, MA 01003. *Euler systems in algebraic function fields over a finite field.*

Let k be a global function field over a finite field together with a distinguished place ∞ of k and a sign function sgn. Let A_∞ be the ring of functions which are holomorphic away from ∞. Let

$$\phi : A_\infty \to End(G_a/k^{ac})$$

be a rank one sgn-normalized Drinfeld A_∞-module defined over the the algebraic closure of k, and let H_∞/k be the associated Hilbert Class Field.

Taking (k,∞,sgn) as a base, we construct a Euler system over H_∞ which is analogous to the cyclotomic Euler system over Q.

Since ∞ might be any place of k, we are motivated by this result to construct Gauss sum Euler systems over any rational prime p of Q. (Received September 23, 2006)