Ahmad El-Guindy, Riad Masri and Matthew Papanikolas* (papanikolas@tamu.edu),
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Guchao Zeng. Traces of singular moduli over the rational function field.

In the 1990’s and 2000’s, Zagier proved remarkable results on traces of singular moduli that showed they satisfy various
simple identities on average and that ultimately they constitute the Fourier coefficients of a particular half-integral weight
modular form. In the present talk we will consider ways to phrase these same questions over the rational function field in
one variable over a finite field. In this setting singular moduli are defined as values of the Drinfeld modular \( j \)-invariant
on Heegner points in the Drinfeld upper half-space. Through work of Bae, Hsia, Wang, J. Yu, and J.-K. Yu, it is possible
to define class polynomials over the rational function field whose roots are singular moduli but which also satisfy explicit
connections with modular polynomials. Building on these constructions we devise average results for traces of singular
moduli and recover formulas for Hurwitz class numbers that align with Zagier’s results. (Received August 10, 2020)