

1046-11-878

**Jenny G. Fuselier\*** ([jenny.fuselier@usma.edu](mailto:jenny.fuselier@usma.edu)). *Traces of Hecke operators in level 1 and Gaussian hypergeometric functions.*

In this talk, we explore relationships between traces of Hecke operators in level 1, counting points on a family of elliptic curves over  $\mathbb{F}_p$ , and values of a  ${}_2F_1$  hypergeometric function over  $\mathbb{F}_p$ . In particular, for primes  $p$  congruent to 1 mod 12, we present a formula for Ramanujan's tau function at  $p$  in terms of  $10^{th}$  powers of a hypergeometric function. We also present a recursive formula for the traces of Hecke operators in level 1 in terms of the same Gaussian hypergeometric function. (Received September 12, 2008)