Speaker: Joe Kramer-Miller

Title: p-adic variation of exponential sums on curves

Abstract: Understanding exponential sums over an algebraic variety in characteristic $p > 0$ is a fundamental problem in arithmetic geometry. One approach is to consider the L-function associated an exponential sum. By Deligne's work on the Weil conjectures, we know that this L-function is rational and has roots that are ℓ-adic units whenever $\ell \neq p$. It is natural to ask about the p-adic properties of this L-function, which are less well behaved. In this talk, we study the p-adic variation of these L-functions as our exponential sum varies over the p-adic cyclotomic weight space. Generalizing work of Davis-Xiao-Wan, we prove that p-adic families of exponential sums over certain curves satisfy properties analogous to Coleman's spectral halo conjecture. Time permitting, we will explain applications to the Newton stratum of Artin-Schreier moduli spaces. This is joint work with James Upton.