A p-adic Stark conjecture in the rank one setting

Abstract:
In the 1970’s Stark made precise conjectures about the leading term of the Taylor series at s=0 for Artin L-functions. In the rank one setting when the order vanishing is exactly one, these conjectures relate the derivative of the L-function at s=0 to the logarithm of a unit in an abelian extension of the base field. In this talk, we will define a p-adic L-function and state a p-adic Stark conjecture in the rank one setting when the base field is a quadratic field. We prove our conjecture in the case when the base field is imaginary quadratic and the prime p is split, and discuss numerical evidence in the other cases.