1014-11-269 **Caleb J. Emmons*** (`cemmons@math.ucsd.edu`), Department of Mathematics, University of California, San Diego, 9500 Gilman Drive, Dept 0112, La Jolla, CA 92093-0112. *Higher order Stark-type conjectures.* Preliminary report.

The Stark conjectures attempt to understand the leading terms at $s = 0$ of the S-incomplete abelian Artin L-functions attached to a global field in terms of S-units. The conjectures have application to, among other things, Hilbert's 12th problem–the explicit construction of abelian extensions of global fields and description of the Artin reciprocity map. In this talk, I will discuss a Stark-type conjecture of Rubin which applies to higher order of vanishing situations in which the L-functions have been "smoothed" by an auxiliary set T and their vanishing is produced by primes in S that split. Then I will introduce a recent extension of this conjecture, due to Popescu, in which we no longer require split primes. I will present links between the original and extended conjectures, which prove their equivalence in certain circumstances. Finally, I will sketch a proof of Rubin's conjecture in multiquadratic extensions for sufficiently large sets T. (Received September 03, 2005)