1116-11-2966 **Timothy James All*** (allt@wabash.edu), 301 W. Wabash Ave, Crawfordsville, IN 47933.
Stickelberger Elements for $\mathbb{Q}(\zeta_{p^{n+1}})^+$ and p-adic L-functions.

Let k_n denote the cyclotomic field of conductor p^{n+1}. Stickelberger's theorem states that an explicit element, called the Stickelberger element, in the Galois group ring (with rational coefficients) essentially annihilates the ideal class group of k_n. Let χ be an odd character of conductor p not equal to ω, the Teichmüller character. Iwasawa noticed that the χ-components of these Stickelberger elements were coherent in the cyclotomic $\mathbb{Z}_p$-extension k_∞ thus giving rise to what we call a distribution. What's more, Iwasawa showed that the Fourier transform of this distribution is essentially the p-adic L-function attached to $\chi^{-1}\omega$. In this paper, we show that the above theory can be duplicated on the "plus" side. We construct Stickelberger elements for k_n^+, the maximal real subfield of k_n. These Stickelberger elements have p-adically defined coefficients and annihilate the p-part of the ideal class group of k_n^+. Moreover, the $\chi\omega^{-1}$-components of these Stickelberger elements are coherent in the cyclotomic $\mathbb{Z}_p$-extension k_∞^+, and the Fourier transform of the associated distribution is essentially the twisted p-adic L-function attached to $\chi^{-1}\omega$. (Received September 23, 2015)