1077-54-2745 **Joshua Sack** (joshua.sack@gmail.com) and **Saleem Watson*** (saleem@csulb.edu).

Correspondences between ideals and z-filters for rings of continuous functions between C^* and C.

Let X be a completely regular topological space and let $A(X)$ be any ring of continuous functions satisfying $C^*(X) \subseteq A(X) \subseteq C(X)$. We show that the correspondence $\mathcal{Z}_A$ (defined in Redlin, L. and Watson, S.; Maximal ideals in subalgebras of $C(X)$, *Proc. Amer. Math. Soc.* **100** (1987), 763–766) between ideals of $A(X)$ and z-filters on X extends the well-known correspondence for $C^*(X)$ to any $A(X)$. We also define a new correspondence $\mathfrak{Z}_A$ that extends the well-known correspondence for $C(X)$ to any $A(X)$. In addition, we show that $\mathfrak{Z}_A$ is a one-to-one correspondence between the maximal ideals of any $A(X)$ and the z-ultrafilters on X, and we give an explicit formula that relates the correspondences $\mathcal{Z}_A$ and $\mathfrak{Z}_A$. We use properties of $\mathcal{Z}_A$ and $\mathfrak{Z}_A$ to characterize $C^*(X)$ and $C(X)$ among intermediate rings on X. For rings $A(X)$ that are C-rings, we use the map $\mathfrak{Z}_A$ to give a topological characterization of the maximal ideals in any $A(X)$ that generalizes the Gelfand-Kolmogoroff characterization of maximal ideals in $C(X)$. (Received September 22, 2011)