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**Hueytzen J Wu\*** (kfhjw00@tamuk.edu), Department of Mathematics, MSC 172, 700 University Blvd., Kingsville, TX 78363, and **Wan-Hong Wu**, 7703 Floyd Curl Dr., San Antonio, TX 78229.  
*Extensions of Tychonoff theorem in Hausdorff compactifications and generalized Stone-Weierstrass theorem.*

An extension of Tychonoff theorem to characterize compact spaces  $X$  is obtained in term of  $A$ -net, where  $A$  is any collection of continuous functions on  $X$ . The extension is applied in obtaining an arbitrary Hausdorff compactification of a Tychonoff space by a lattice-homomorphism process. This process results in an extension of the generalized Stone-Weierstrass theorem to Cz-vector lattices and Cz-algebras in the space of bounded real continuous functions on any topological space. (Received September 10, 2010)