1096-54-1758 **James P. Kelly*** (j_kelly@baylor.edu), Department of Mathematics, Baylor University, One Bear Place #97328, Waco, TX 76798-7328. *Inverse Limits with Irreducible Set-Valued Functions.*

Given a continuum X, 2^X denotes the set of compact subsets of X. If $\mathbf{X} = (X_i)_{i=1}^{\infty}$ is a sequence of continua, and $\mathbf{F} = (F_i)_{i=1}^{\infty}$ is a sequence of upper semi-continuous set-valued functions where for each $i \in \mathbb{N}$, $F_i : X_{i+1} \to 2^{X_i}$, then the inverse limit of the pair $(\mathbf{X}, \mathbf{F})$ is the set

$$\varprojlim(\mathbf{X}, \mathbf{F}) = \{\mathbf{x} \in \prod_{i=1}^{\infty} X_i : x_i \in F_i(x_{i+1}) \text{ for all } i \in \mathbb{N}\}.$$

We will develop a definition for a class of set-valued functions which will be called irreducible functions, and we will demonstrate that these functions can be used to obtain an indecomposable continuum as an inverse limit. In addition, sufficient conditions will be established for two such inverse limits to be homeomorphic. Our focus will be primarily on indecomposable functions on $[0, 1]$, a class of functions which includes all open mappings other than homeomorphisms. The inverse limits of open mappings on $[0, 1]$ were classified by William Thomas Watkins in 1980, and the results we will discuss build on his results and expand the class of functions to which they apply. (Received September 16, 2013)