1107-37-154 **Michael Sylvester Keane*** (mkeane@wesleyan.edu), 307 Lakeridge Dr, San Antonio, TX 78229-3604. *Dynamical Classification of Primitive Constant Length Substitutions.* Preliminary report.

Primitive substitutions give rise to unique minimal dynamical systems, and isomorphisms between such systems are simply given by finite data in the form of a sliding block code. For primitive substitutions having the same constant length (but possibly different alphabets), we have developed an algorithm deciding whether they are isomorphic or not; in addition, we can for a given such substitution make a list of all isomorphic injective substitutions of the same length in an algorithmic manner. For example, for the Toeplitz substitution the list contains (when counted properly) two other substitutions, one on a two-symbol alphabet and one on a three-symbol alphabet, and the Thue-Morse substitution list contains exactly twelve members, including two on a six-symbol alphabet. Moreover, for any primitive constant length substitution the list is finite and in principle can be generated by a machine. I would very much like to explain a similar theory for primitive substitutions of nonconstant length, but up until now we have not met with success. For instance, we know nothing about the class of the Fibonacci substitution. This lecture is based on joint work with Ethan Coven and Michel Dekking. (Received January 12, 2015)