1046-15-1998   **Troy Banks*** (`tvbanks@salisbury.edu`), Department of Mathematics & Computer Science, Salisbury University, 1101 Camden Avenue, Salisbury, MD 21801. *On the structure of some classes of invariant kernels.* Preliminary report.

We study the structure of a certain class of Toeplitz-like positive definite kernels on the free semigroup on N generators. We explore some possible applications to multiscale processes and to learning with kernels. Associated classes of orthogonal polynomials are also investigated. (Received September 16, 2008)