

1038-16-273

**Steve Szabo\*** (szabo@math.ohiou.edu), Athens, OH 45701, and **Sergio R. López-Permouth.**  
*Convolutional Codes with Additional Structure.*

An important class of convolutional codes are cyclic convolutional codes which can be viewed as certain left ideals of a skew polynomial ring over a particular semisimple ring. In the most general sense, a skew polynomial ring includes a derivation on the coefficient ring which is used in the skewing of the polynomial ring. Cyclic convolutional codes were previously introduced with the skew polynomial ring not including a derivation. In this paper, the notion of cyclic convolutional codes will be extended in two ways. First, the word ambient will be a semisimple algebra over a field. Secondly, the code ambient will be a general skew polynomial ring. This new notion will encompass the previously mentioned cyclic convolutional codes as well as codes of other types which may or may not be described by some sort of cyclicity. The question of when a non-block convolutional code can be found will be answered. In addition, it will be shown under most conditions, these codes are principal left ideals. (Received February 11, 2008)