1113-13-154 **Nicholas R. Baeth*** (baeth@ucmo.edu), W. C. Morris 213, University of Central Missouri, Warrensburg, MO 64093. *Factorization of upper triangular Toeplitz matrices.* Preliminary report.

Let R be a commutative ring. For a positive integer n, let I_n denote the $n \times n$ identity matrix and let $B = [b_{ij}]$ denote the $n \times n$ matrix with $b_{ij} = 1$ if $j = i + 1$ and $b_{ij} = 0$ if $j \neq i + 1$. Then $B^n = 0$ and $T_n(R)$ denotes the commutative ring of upper triangular Toeplitz matrices over R — those matrices of the form $r_0 I_n + r_1 B + r_2 B^2 + \cdots + r_{n-1} B^{n-1}$ with each $r_i \in R$. It is easy to see that $T_n(R) \cong R[x]/(x^n)$ and that if $n = 2$, $T_2(R) \cong R \ltimes R$, the self-idealization of R.

If R is Noetherian, so is $T_n(R)$ and every nonzero nonunit in $T_n(R)$ can be written as a product of finitely many irreducible elements. Chang and Smertnig began the study of factorization in $T_2(R)$ when R is a principal ideal ring. In particular, they classified, except in special anomalous cases, all possible lengths of factorizations of elements as products of irreducibles. In this talk we discuss their results as well as generalizations to the anomalous cases and to the case where R is any principal ideal ring or unique factorization ring (joint work with M. Axtell and J. Stickles), as well as when R is a PID and $n > 2$ (joint work with D. Bachman and A. McQueen). (Received August 19, 2015)