1014-16-251   **Kenneth L. Price*** (`pricek@uwosh.edu`), Mathematics Department, University of Wisconsin Oshkosh, 800 Algoma Blvd., Oshkosh, WI 54901. *Factorization in Polynomial Rings of Two Noncommuting Variables.*

The speaker will describe results he obtained collaboratively with two undergraduate students. We considered factorization problems in noncommutative polynomial algebras over a field of any characteristic not equal to 2.

The algebras we studied are easy to describe. Let q be a nonzero scalar and consider relations (i) and (ii) for the product of variables x and y.

i. $yx = qxy$ ii. $yx = qxy + 1$

The polynomial algebras satisfying relations (i) and (ii) are called quantum planes and quantized Weyl algebras, respectively. They are noetherian domains with a well-defined total degree map.

As in the case of ordinary commutative polynomial rings, prime polynomials are always irreducible in these algebras. But irreducible polynomials are not always prime.

The speaker will answer the following question: when is a quadratic form irreducible or prime in a quantum plane or a quantized Weyl algebra? (Received August 31, 2005)