

UCCS Department of Mathematics

Math Colloquium Series

DR. JASON BOYNTON
NORTH DAKOTA STATE UNIVERSITY



DATE:

MARCH 7, 2019

TIME:

12:30PM-1:30PM

(REFRESHMENTS AT 12:15PM)

LOCATION:

OSBORNE
ROOM #A327

Factorization in rings of polynomials of the form $D+M$ (and generalizations)

Abstract: In this talk, we will survey some factorization properties in certain (sub)rings of polynomials. For example, in a standard introductory abstract algebra course it is shown that if D is a unique factorization domain, then so is its polynomial ring $D[x]$. Indeed, the ring $\mathbb{Q}[x]$ of polynomials with rational coefficients enjoys the unique factorization property. In fact, this ring is endowed with a Euclidean norm which gives an algorithm for finding greatest common divisors. On the other hand, the very slightly modified subring $R = \mathbb{Z} + x\mathbb{Q}[x]$ does not even admit irreducible factorizations of all its nonzero nonunit polynomials. The ring R is the prototypical example of a $D + M$ construction. We will also consider the related constructions $A + xB[x]$ and rings of integer-valued polynomials.

For More Information please contact the UCCS Math Department at
(719) 255-3311 www.uccs.edu/math