UCCS Department of Mathematics

Math Colloquium Series

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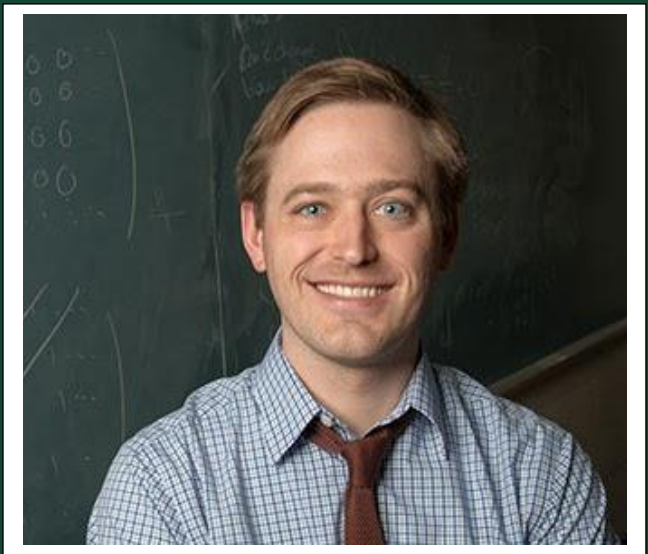

DATE:

OCTOBER 7, 2021

TIME:

12:30PM-1:30PM

LOCATION:

PLEASE VISIT THE UCCS MATH COLLOQUIUM PAGE FOR A LINK:

HTTPS://MATH.UCCS.EDU/RESEARCH/COLLOQUIA

Ideal Extensions and Directly Infinite Algebras

Abstract: Directly infinite algebras, those algebras, E which have a pair of elements x and y where $1 = xy \neq yx$, are well known to have a sub-algebra isomorphic to $M_\infty(K)$, the set of infinite $\zplus \times \zplus$-indexed matrices which have only finitely many nonzero entries. When this sub-algebra is actually an ideal, we may analyze the algebra in terms of an extension of some algebra A by $M_\infty(K)$, that is, a short exact sequence $0 \to M_\infty(K) \to E \to A \to 0$. In this talk, I will characterize trivial (split) extensions of $K[x,x^{-1}]$ by $M_\infty(K)$ by examining the extensions as sub-algebras of infinite matrix algebras. Furthermore, I will construct an infinite family of pairwise non-isomorphic extensions $\{\mathcal T_i : i \geq 0\}$, all of which can be written as an extension of $K[x,x^{-1}]$ by $M_\infty(K)$.

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