



# Department of Mathematical Sciences

Spring 2018

## Colloquium Series

February 16, 2018 at 3pm in Bell Hall 143

# Dr. Piotr Wojciechowski

The University of Texas at El Paso

## Full Algebras of Matrices

A complete classification of full algebras of matrices is given (where a subalgebra  $\mathcal{A}$  of  $M_n(\mathbb{R})$  is *full* if for all  $i = 1, \dots, n$ ,  $E_{ii} \in \mathcal{A}$ ). All such algebras are permutation-isomorphic to block lower-triangular matrices with corresponding subdiagonal blocks being either zero-blocks or full. Two full algebras are isomorphic if and only if they are permutation-isomorphic. A one-to-one correspondence is provided between the full algebras and transitive directed graphs. It is also proven that such algebras, if endowed with a lattice order, can be almost- $f$ - or  $d$ -algebras only if they are diagonal.

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