UCCS Department of Mathematics

Math Colloquium Series

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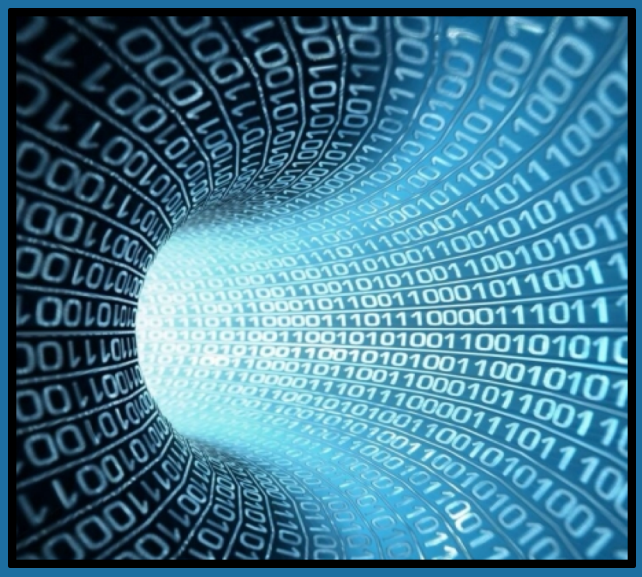

DATE:
OCTOBER 26, 2017

TIME:
12:30PM-1:30PM
(REFRESHMENTS AT 12:15PM)

LOCATION:
UNIVERSITY CENTER
ROOM #122

Associativity and Infinite Matrices

Abstract: In a typical first course in linear algebra, finding a solution to a set of m linear equations in n unknowns guides much of the course. The representation of this system as the equation $Ax = b$ where A is an $m \times n$ matrix (with m and n finite), $x \in K^n$, and $b \in K^m$ for some field K is a central feature throughout. In order to find a solution, one would find a solution to this matrix equation $Ax = b$ by multiplying both sides by some matrix of row operations U to write the matrix A into some easily solvable form such as upper upper triangular form, row echelon form, etc. From there one solves the transformed equation, $(UA)x = Ub$, to get a solution to the original equation. One assures that this is indeed a solution by multiplying on the left by the inverse matrix V for U. In the case of an infinite number of equations in infinitely many unknowns, the relevant matrices are infinite so one must take care that V, U, and A are all multipliable matrices and that their product is associative. In this talk we will explore conditions under which the product of three matrices is associative. This talk will be accessible to a wide mathematical audience, requiring no more than an understanding of basic linear algebra.

For More Information please contact the UCCS Math Department at
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