## Department of Mathematical Sciences Colloquium

## Piotr J. Wojciechowski

Department of Mathematical Sciences, UTEP

## MATRIX ALGEBRAS WITH MULTIPLICATIVE DECOMPOSITION PROPERTY

If  $a, b \ge 0$  and  $0 \le c \le ab$ , then there are  $0 \le a' \le a$  and  $0 \le b' \le b$  such that c = a'b'. This is certainly true for the real numbers, but does this *multiplicative decomposition property* hold true within all real algebras? Huijsmans and de Pagter have shown that certain important classes of function algebras, including the algebra of continuous functions, C(X), enjoy this property. The situation is dramatically different in case of matrices. In his master's thesis, Julio C. Urenda found necessary and sufficient conditions under which such a decomposition is possible. They are quite restrictive. Taking these, as well as general theorems of Taen-Yu Dai, as starting points, we will provide a full description of matrix algebras satisfying the decomposition property.

## Friday, March 26, 2010 at 3 pm in Bell Hall 143 The University of Texas at El Paso

Refreshments will be served in front of the colloquium room, 15 minutes before the start of the colloquium.