

Department of Mathematical Sciences
Colloquium

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Lattice-ordered matrix rings over the integers

Let R be a lattice-ordered ring, and let $M_n(R)$ be the $n \times n$ ($n \geq 2$) matrix ring over R . Then $M_n(R)$ becomes a lattice-ordered ring by letting the positive matrices be those with positive entries; this lattice order is called the *usual lattice order* on $M_n(R)$. In general, one can ask whether the following statement is true for some lattice-ordered ring R and some positive integer n :

$\mathfrak{C}_{n,R}$ The only compatible lattice order on $M_n(R)$ with respect to which the identity matrix is positive is, up to isomorphism, the usual lattice order.

Ma and Wojciechowski showed that $\mathfrak{C}_{n,R}$ holds for any totally subfield F of the real numbers \mathbb{R} and any $n \geq 2$. I will explain why $\mathfrak{C}_{n,R}$ is also true for the totally ordered ring of integers and find all compatible orders in the two-by-two case.

Friday, April 11, 2008 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.

For further information, please contact Dr. Pavel Solin, Bell Hall 220. Phone: (915) 747-6770, email: solin@utep.edu.