Department of Mathematical Sciences
Colloquium

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STRONGLY ADEQUATE MODEL OF ŁUKASIEWICZ'S LOGIC VIA MV-ALGEBRA EMBEDDINGS

For a given cardinal number $\mathfrak{a}$, we construct a totally-ordered MV-algebra $M(\mathfrak{a})$ having the property that every totally-ordered MV-algebra of cardinality at most $\mathfrak{a}$ embeds into $M(\mathfrak{a})$. The construction is possible due to the categorical equivalence between the category of all MV-algebras and all unital abelian lattice-ordered groups and by application of Mundici's Γ functor and Hahn's embedding theorem. The algebra $M(\aleph_0)$ is the first known MV-algebra with respect to which the deductive system for the infinitely-valued Łukasiewicz's propositional logic is strongly complete, and thus provides a strongly adequate model (in the sense of Łoś and Suszko). Necessary background from logic, MV-algebras and lattice-ordered groups will be provided. Some interesting questions about generalizations to GMV-algebras (the noncommutative analogues of MV-algebras) will be addressed, and possibilities of the future work will be outlined.

Friday, March 27, 2009 at 3pm 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. Andrzej Pownuk, Bell Hall 201.
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