

Mathematical Colloquia

Monday, 29 October 2018

17:15 h, Lecture Room 119

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PBZ*-lattices

Abstract:

The variety of PBZ*-lattices is an abstract algebraic counterpart of the structure of all effects of a complex separable Hilbert space under the spectral ordering. This class of algebras is motivated, from a physical viewpoint, by the fact that it reproduces at an abstract level the "collapse" of several notions of sharp physical property that is observed in the concrete physical model whence it originates; from an algebraic viewpoint, it can be viewed as an unsharp generalisation of orthomodular lattices that also covers certain expansions of Kleene lattices. We will survey the research conducted so far on the topic, including:

- its basic structure theory (central elements, ideal theory, embedding results);
- the structure of its lattice of subvarieties;
- some constructions on PBZ*-lattices (horizontal sums, ordinal sums);
- its relationships with other classes of algebras motivated by

quantum logic, modal logic and many-valued logic.