▸ CONTRERAS-MANTILLA JOSE MIGUEL AND SINCLAIR THOMAS, *The continuous model theory of partition lattices.*

Mathematics Department, Purdue University, West Lafayette IN MATH 433, USA.
E-mail: `contre56@purdue.edu`.
Mathematics Department, Purdue University, West Lafayette IN MATH 744, USA.
E-mail: `tsincla@purdue.edu`.
URL Address: `https://www.math.purdue.edu/ tsincla/`.

The objective of this talk is to present an application of the theory of metric lattices we developed in [1], by using it to describe a theory of finite partition lattices [1] and to show how it relates to the theory of continuous partition lattices due to Björner [6]. We will begin by presenting the language, axioms and limitations of our theory for metric lattices. This theory was developed in the framework of Continuous Logic, a generalization of First Order Logic used to apply model theoretical results in the study of metric structures, and as such we will emphasize how it plays with the flexibility given by "approximating" in the continuous logic to properly capture the desired properties. After that, we will focus on the finite partition lattices, describe their associated metric, and define their theory T_{FPL} as the set of all sentences satisfied by all partition lattices. Finally, we will show results that give us some insights of how are the models of T_{FPL}, which we call *pseudofinite partition lattices*, and their relation with continuous partition lattices. Specifically, how the set of modular elements is definable, that for infinite models of T_{FPL} this set forms a complete Boolean sublattice and that in such cases it "encodes" in some way the information of the infinite pseudofinite partition lattice it came from.

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