

*Abstract submitted for Thirty-Third Annual Victorian Algebra Conference*

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**Title:** Algebras of incidence structures: representations of regular double p-algebras,

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Reyes and Zolfaghari proved that the lattice of subgraphs of a graph naturally forms a double-Heyting algebra. We generalise this result and show that the lattice of point-preserving substructures of an incidence structure naturally forms a regular double p-algebra.

An incidence structure is a standard geometric object consisting of a set of points, a set of lines and an incidence relation specifying which points lie on which lines. This concept generalises, for example, graphs, hypergraphs and projective planes.

The result given in this talk is a characterisation of the regular double p-algebras which are isomorphic to a lattice of point-preserving substructures. In addition to the corollary that every finite regular double p-algebra is isomorphic to such a lattice, a special case of the result is a standard theorem for boolean algebras: a boolean algebra is isomorphic to a powerset lattice if and only if it is complete and atomic.