

DEPARTMENT OF MATHEMATICAL SCIENCES

Discrete Mathematics Seminar

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WPI**

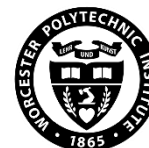
Title: Marginal independence and the poset of partial set partitions.

Abstract: Marginal independence models are commonly studied by attaching to them a combinatorial structure to encode the independence relations between random variables. The choice of combinatorial structure often limits the family of models that can be described by it. In this talk, we will tackle the problem of finding a combinatorial structure that describes every marginal independence model by establishing a bijection between marginal independence models and a family of order ideals of the poset of partial set partitions. We will also discuss the varieties that define such models for discrete random variables and show that every binary marginal independence model is toric after a linear change of coordinates. This generalizes results of Boege, Petrovic, and Sturmfels (simplicial complex models), and Drton and Richardson (graphical models), and provides a unified framework for discussing marginal independence models. This talk is based on joint work with Seth Sullivant.

Thursday, October 8

11:00 – 11:50 am

Stratton 313



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