

## Departmental Colloquium

### *Directed hypergraphs and Horn formulas*

Gyorgy Turan (UIC)

**Abstract:** A directed hypergraph has edges of the form  $a, b \rightarrow c$ , i.e., edges have a single head, but can have multiple vertices in the tail. This is a generalization of directed graphs. Directed hypergraphs are closely related to Horn formulas in logic, closure operators, lattices and functional dependencies in databases. The study of these concepts is an area where 'graph theory meets reasoning'. We discuss directed hypergraphs from the point of view of optimization, extremal and probabilistic combinatorics, and knowledge representation and reasoning in artificial intelligence.

*4:15 PM in 300 SEO*

Friday, March 11 at 3:00 PM in SEO 636
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