

BI-CO MATHEMATICS COLLOQUIUM

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“Applications of Finite Geometry in Extremal Combinatorics”

Monday, April 10, 2017

Talk at 4:00 – Park 338
Tea at 3:30 – Park 355, Math Lounge

Abstract:

How many edges may be in an n -vertex graph that does not contain a triangle? If 45 people are at a party, is there a set of 5 of them all of whom either mutually know each other or mutually do not know each other? Can a set of integers "look like" both an arithmetic progression and a geometric progression at the same time? These are examples of questions in Turán-type theory, Ramsey theory, and combinatorial number theory respectively. In this talk, we discuss how to use finite incidence geometries (e.g., a projective plane) to prove theorems in these areas of combinatorics.