

UNIVERSITY OF DELAWARE
DEPARTMENT OF MATHEMATICAL SCIENCES
DISCRETE MATHEMATICS SEMINAR

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Incidence geometry and independent sets

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In this talk I shall first introduce the general notion of *incidence geometry* which is due mainly to BUEKENHOUT. It generalizes many (geometric) concepts of mathematics and has been used successfully in group theory for example. A new link with group theory will be explained.

A subset S of a group G is called *independent* if we have $s \notin \langle S \setminus \{s\} \rangle$ for each $s \in S$. It turns out that a geometry on which a given group G acts as a flag-transitive automorphism group gives rise to an independent set of G .

Can one also construct geometries from independent sets? What can we learn from independent sets? Results obtained in collaboration with CAMERON will be shown for finite symmetric groups.