

# Clique Number and Chromatic Number of Graphs defined by Convex Geometries

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## Abstract

A family  $\mathcal{L}$  of subsets of a finite set is called a *convex geometry* if it is closed under intersections and satisfies some additional properties. A naturally defined graph  $\mathcal{G}(\mathcal{L})$  has the property that its cliques correspond to so-called convexly independent subsets of  $\mathcal{L}$ . We study the chromatic number of  $\mathcal{G}(\mathcal{L})$  and give a sequence of convex geometries for which  $\mathcal{G}(\mathcal{L})$  has clique number 2 and arbitrarily large chromatic number. This is joint work with Jonathan Beagley.

**Keywords:** convex geometry, clique number, chromatic number.