

VCU Discrete Mathematics Seminar

Minimal Kakeya sets

Prof Keith Mellinger
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Tuesday, September 23

12:30–1:20

4119 Harris Hall

In recent years I have been interested in how conics in the classical projective plane $PG(2, q)$ can be used to construct interesting geometric or combinatorial objects. This talk will look at anti-blocking sets, something we define and describe in detail. The initial arguments are completely synthetic and reveal very quickly that the problem reduces to the construction of a Kakeya set, that is, a set of points in affine space containing a line in every direction. We explain this very natural reduction, and a non-trivial example of a minimal Kakeya set is constructed. Our construction relies on the geometry of certain algebraic pencils of conics. I also plan to give an overview of what is known about Kakeya sets.



For more information on our fall schedule, see:
<http://www.people.vcu.edu/~dcranston/DM-seminar/>