

AGCO Seminar

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Where: Av República 701, Sala 33.

When: Wednesday, May 8, 14:30.

Title: Generalizations of the geometric de Bruijn Erdős Theorem

Abstract: A classic Theorem of de Bruijn and Erdős states that every noncollinear set of n points in the plane determines at least n distinct lines. The line $L(u, v)$ determined by two points u, v in the plane consists of all points p such that

- $\text{dist}(p, u) + \text{dist}(u, v) = \text{dist}(p, v)$ (i.e. u is between p and v) or
- $\text{dist}(u, p) + \text{dist}(p, v) = \text{dist}(u, v)$ (i.e. p is between u and v) or
- $\text{dist}(u, v) + \text{dist}(v, p) = \text{dist}(u, p)$ (i.e. v is between u and p).

With this definition of line $L(uv)$ in an arbitrary metric space (V, dist) , Chen and Chvátal conjectured that every metric space on n points, where n is at least 2, has at least n distinct lines or a line that consists of all n points. The talk will survey results on and around this conjecture.