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Seminar
Discrete Mathematics

Title
Lines, betweenness and metric spaces

Speaker
Pierre Aboulker
(Universidad Andres Bello)

Abstract:

A celebrated Theorem of de Bruijn and Erdos states that every noncollinear set of n points in the plane determines at least n distinct lines. Line uv in the plane consists of all points p such that:

- dist(p,u) + dist(u,v) = dist(p,v) (i.e. u is between p and v) or
- dist(u,p) + dist(p,v) = dist(u,v) (i.e. p is between u and v) or
- dist(u,v) + dist(v,p) = dist(u p) (i.e. v is between u and p).

With this definition of line uv in an arbitrary metric space (V, dist), Chen and Chvatal 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 supporting this conjecture as well as some discussions around lines induced by a set of points together with a betweenness relations. Most of the presented results can be found in "Lines, betweenness and metric paces" (P.A., X. Chen, G. Huzhang, R. Kapadia, C. Supko).

Host: Marcos Kiwi

Date: Friday April 17, 2015 - 16:15.
Place: Sala de seminarios del CMM John Von Neumann.