

Dr. Faustin Adiceam, University of Manchester

Title: Recent advances related to the construction of dense forests

Abstract:

The Danzer Problem asks for the existence of a set with finite density intersecting any convex body of volume one. Weakening the assumption on the volume of the convex bodies gives rise to the concept of so-called dense forests. These are sets with finite density designed to answer the following questions :

Assume that each point in the set is the center of a ball ("a tree") with radius ϵ . Can one position the trees so that no matter where one stands and what direction one looks in, one will never be able to see the horizon? If so, what is the minimal visibility one can obtain in terms of ϵ ?

After a brief exposition of the state of the art concerning the Danzer problem, we will explicit its relation with the existence of dense forests and then show how to construct such a set. The bound on the visibility thus obtained is the best known under the assumption that the construction of the forest is fully explicit.

This is ongoing work with Barak Weiss (Tel Aviv University) and Yaar Solomon (Ben Gurion University).