For Favour of Posting

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Seminar

Equilateral triangles in subsets of $\mathbb{R}^d$ of large Hausdorff dimension

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Abstract

I will discuss how large the Hausdorff dimension of a set $E \subset \mathbb{R}^d$ needs to be to ensure that it contains vertices of an equilateral triangle. An argument due to Chan, Laba and Pramanik (2013) implies that a Salem set of large Hausdorff dimension contains equilateral triangles. We prove that, without assuming the set is Salem, this result still holds in dememsions four and higher. In $\mathbb{R}^2$, there exists a set of Haudorff dimension 2 containing no equlateral triangle (Maga, 2010).

I will also introduce some interesting parallels between the triangle problem in Euclidean space and its counter-part in vector spaces over finite fields.

It is a joint work with Alex Iosevich.

Date :	October 18, 2016 (Tuesday)
Time :	2:30pm – 3:30pm
Venue :	Room 219, Lady Shaw Building, The Chinese University of Hong Kong

All are Welcome