Du
18
JUIN.
2022

14h30
-
15h30

SÉMINAIRE BOURBAKI

Sarah Peluse — Recent progress on bounds for sets with no three terms in arithmetic progression

IHP
Hermite

INSCRIPTION

A famous conjecture of Erdős states that if S is a subset of the positive integers and the sum of the reciprocals of elements of S diverges, then S contains arbitrarily long arithmetic progressions. If one could prove, for each positive integer k, sufficiently good bounds for the size of the largest subset of the first N integers lacking k-term arithmetic progressions, then Erdős's conjecture would follow. There is thus great interest in the problem of proving the strongest possible bounds for sets lacking arithmetic progressions of a fixed length. In this talk, I will survey the recent advances of Bloom–Sisask on this problem for length three progressions and of Croot–Lev–Pach and Ellenberg–Gijswijt on the analogous problem in F^n_3 (the "cap set problem"). These two advances rely on very different techniques —Fourier analytic methods and a version of the polynomial method, respectively— and I will give an overview of both.

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HORAIRES

L'institut :
• lundi au vendredi de 8h30 à 18h,
• fermé les jours fériés.

Le musée - Maison Poincaré :
• lundi, mardi, jeudi et vendredi
de 9h30 à 17h30,
• samedi de 10h à 18h,
• fermé le mercredi et le dimanche.