abstract

ANALYSIS SEMINAR
Topic:

Speaker:

Affiliation:

Date:

Time/Room:

In 1975 Szemeredi proved that every subset of the integers with positive density contains arbitrarily long arithmetic progressions. Bergelson and Leibman showed in 1996 that the common difference of the arithmetic progression can be a square, a cube, or more generally of the form p(n) where p(n) is any integer polynomial with zero constant term. We produce a variety of new results of this type. We show that the common difference can be of the form [n^c] where c is any positive real number, or more generally of the form [a(n)] where a(x) is any function that belongs to some Hardy field and satisfies some mild growth conditions. This allows us for example to deal with the class of logarithmico-exponential functions, i.e., functions that can be constructed by a finite combination of the ordinary arithmetical symbols, the real constants, and the functions e^x, log x . This is joint work with Mate Wierdl.