

abstract

Joint IAS-PU Number Theory Seminar
Topic:

Speaker:

Affiliation:

Date:

Time/Room:

In this talk we will show that many arithmetic sequences have asymmetries in their distribution amongst the progressions mod q . The general phenomenon is that if we fix an integer a having some arithmetic properties (these properties depend on the sequence), then the progressions $a \bmod q$ will tend to contain fewer elements of the arithmetic sequence than other progressions $a \bmod q$, on average over q . The observed phenomenon is for quite small arithmetic progressions, and the maximal size of the progressions is fixed by the nature of the sequence. Examples of sequences falling in our range of application are the sequence of primes, the sequence of integers which can be represented as the sum of two squares (or more generally by a fixed positive definite binary quadratic form) (with or without multiplicity), the sequence of twin primes (under Hardy-Littlewood) and the sequence of integers free of small prime factors. We will focus on these examples as they are quite fun and enlightening.