



CENTRE DE RECERCA MATEMÀTICA

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The complex architecture of primes and natural numbers

Abstract:

Primes have fascinated and puzzled scientists in different disciplines for the last two and a half thousand years. The importance of primes transcend theoretical aspects, and practical applications include public key cryptography algorithms and pseudorandom number generators. Despite all the efforts and their apparent simplicity, the elucidation of patterns in the sequence of primes remains a major challenge. In our work, we introduce a new dimension that allows us to understand primes and their statistical properties not in isolation but as building blocks of natural numbers. We propose to fuse together number theory and graph theory in the context of complex networks and stochastic processes presenting a dynamical model that naturally generates random primes as well as the relation between primes and composites with remarkable accuracy.

Date: November 24, 2016

Place: Room C1/028

Time: 12:00

