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SEMINARIO

CONJUNTO MODELAMIENTO ESTOCÁSTICO- NÚCLEO MILENIO MODELOS ESTOCÁSTICOS DE SISTEMAS COMPLEJOS Y DESORDENADOS

EXPOSITOR
Andreas Kyprianou
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TITUTLO
Terrorists never congregate in even numbers (or: some strange results in fragmentation-coalescence)

Abstract:

We analyse a class of fragmentation-coalescence processes defined on finite systems of particles organised into clusters. Coalescent events merge multiple clusters simultaneously to form a single larger cluster, while fragmentation breaks up a cluster into a collection of singletons. Under mild conditions on the coalescence rates, we show that the distribution of cluster sizes becomes non-random in the large-scale limit. Moreover, we discover that, in the limit of small fragmentation rate, these processes exhibit a universal heavy tailed distribution with exponent 3/2. In addition, we observe a strange phenomenon that if coalescence of clusters always involves 3 or more blocks, then the large-scale limit has no even sided blocks.

Some complementary results are also presented for exchangeable fragmentation-coalescence processes on partitions of natural numbers. In this case one may work directly with the infinite system and we ask whether the process can come down from infinity. The answer reveals a remarkable dichotomy.

This is based on two different pieces of work with Tim Rogers, Steven Pagett and Jason Schweinsberg.

Martes 12 de Enero a las 17:15 hrs, Sala de Seminarios John Von Neumann CMM, Torre Norte, Séptimo Piso, Beauchef 851.

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