Mathematisches Doppelkolloquium

Einladung

Mittwoch, 21. Juni 2023
Sky Lounge

Persi Diaconis
(Stanford)

José A. Scheinkman
(Columbia University)

Persi Diaconis: „The Random Graph"

Abstract:
Pick a graph on n vertices at random. Now, independently, pick another. What's the chance that they are isomorphic? Small. How small? Well, less than n! / 2^(n choose 2). When n= 100, that's 10^-1300 or so, small. Now let n = infinity. The chance that two such graphs are isomorphic is 1. Thus, up to labeling, there is only one! This is R the Rado graph. It has amazing properties and is in a reasonable sense, the limit of the set of finite graphs. I'll explain other constructions (from number theory, from group theory and from scratch).

One way to explore a new object is to make a random walk on it—a Lapacian on a random geometry. Let Q(j) be a probability on N and make a random walk on R by: from i, pick j, a neighbor of i with probability Q(j) (restricted to the neighbors of i). This walk has a stationary distribution and one may ask about rates of convergence. It turns out that, starting from i, log^*(i) steps are necessary and sufficient for convergence. The proof uses Hardy's inequalities in a novel way. I'll try to explain all of this 'in English'. All of it is joint work with Sourav Chatterjee and Laurent Miclo.

José A. Scheinkman: „Carbon prices and forest preservation over space and time in the Brazilian Amazon"

Abstract:
Some portions of land in Brazilian Amazon are forested, and other portions used in agriculture. Deforestation (reforestation) emits (captures) carbon, which has consequence for the global climate. The social and private productivities for these alternative land uses vary across locations within the Amazon region. In this research, we build and analyze a spatial/dynamic model of socially efficient land allocation to establish a benchmark for ad-hoc policies. We show how to incorporate the stochastic evolution of agricultural prices, and we explore the consequences of ambiguity in the location-specific productivities on the socially efficient policy. Finally, we assess the consequences of imposing alternative social costs of carbon emissions on the spatial/dynamic allocation of land use.

Our results indicate that with modest transfers per ton of net CO$_2,$ Brazil would find it optimal to choose policies that produce substantial capture of greenhouse gasses in the next 30 years, suggesting that the management of tropical forests could play an important role on climate change mitigation in the near future.

13:00 Uhr: Persi Diaconis

13.45 Uhr: Kaffeejause

14.15 Uhr: José A. Scheinkman

15:00 Uhr: Vinum cum pane

Nathanael Berestycki
Walter Schachermayer
Radu Ioan Boţ