colmea

Colóquio Interinstitucional
Modelos Estocásticos e Aplicações

Quarta-feira, 25 de outubro de 2017

Programa

14:00 - 15:20 – Marco Molinaro (PUC-Rio)

Online and Random-order Load Balancing Simultaneously
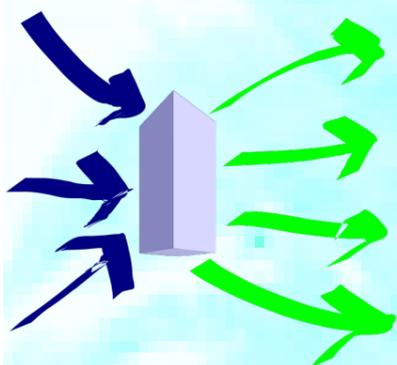
We consider the problem of online load balancing under ℓ_p-norms: sequential jobs need to be assigned to one of the machines and the goal is to minimize the ℓ_p-norm of the machine loads. This generalizes the classical problem of scheduling for makespan minimization (case ℓ_∞) and has been thoroughly studied. We provide algorithms with simultaneously optimal guarantees for the worst-case model as well as for the random-order (i.e. secretary) model, where an arbitrary set of jobs comes in random order. A crucial component for this result that we will try to highlight in the talk is a connection between smoothings of ℓ_p norms, the so-called Online Linear Optimization problem, and the expected norm of sums of random vectors.

15:40 - 17:00 – Cristina Toninelli (Paris 6 & Paris 7)

Bootstrap percolation and kinetically constrained spin models: critical time scales

Recent years have seen a great deal of progress in understanding the behavior of bootstrap percolation models, a particular class of monotone cellular automata. In the two dimensional lattice there is now a quite complete understanding of their evolution starting from a random initial condition, with a universality picture for their critical behavior. Much less is known for their non-monotone stochastic counterpart, namely kinetically constrained models (KCM). In KCM each vertex is resampled (independently) at rate one by tossing a p-coin iff it can be infected in the next step by the bootstrap model. In particular infection can also heal, hence the non-monotonicity. Besides the connection with bootstrap percolation, KCM have an interest in their own: when $p \to 0$ they display some of the most striking features of the liquid/glass transition, a major and still largely open problem in condensed matter physics. I will discuss some recent results on the characteristic time scales of KCM as $p \to 0$ and the connection with the critical behavior of the corresponding bootstrap models.

17:00 – Discussão e lanche

Local

Sala de reuniões do Decanato do CTC
12 º andar do prédio Cardeal Leme
PUC-Rio, Gávea

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