Seminar of Probability and Stochastic Process

Thursday, 20th February, from 10h15
MA A1 12, EPFL, Ecublens

Prof. V. Kolokoltsov

University of Warwick

Nonlinear Markov games on a finite state space

Abstract:

Managing large complex stochastic systems, including

competitive interests, when one or several players can control the

behavior of a large number of particles (agents, mechanisms, vehicles,

subsidiaries, species, police units, etc), say N_k for a player k, the

complexity of the game-theoretical (or Markov decision) analysis can

become immense as $N_k \to \infty$. However, under rather general assumptions,

the limiting problem, as all $N_k \to \infty$, can be described by a well

manageable deterministic evolution. We shall discuss some simple

situations of this kind proving the convergence of Nash equilibria for

finite games to equilibria of a limiting deterministic differential

game. The main ideas are contained in author's paper 'Nonlinear Markov

games on a finite state space (mean-field and binary interactions)'

http://arxiv.org/abs/1105.3053. International Journal of Statistics and

Probability. Canadian Center of Science and Education (Open access

journal), 1:1 (2012), 77-91.

Date of last change: Mon, 10 Feb 2014 16:55:32, by Carlo Ciccarella