Department of Mathematics

ESRC Workshop on Algorithmic Game Theory, London School of Economics

October 17 -18, 2013 Organiser: Bernhard von Stengel

Speakers:

Yakov Babichenko, Costis Daskalakis, Edith Elkind, Kousha Etessami, Felix Fischer, Martin Gairing, Paul Goldberg, Elias Koutsoupias, Ruta Mehta, Rahul Savani, Paul Spirakis, Tomáš Valla, László Varga, László Végh, Adrian Vetta.

Location at LSE:

St. Clement's Building (above the bookshop), STC.S221 (Thursday 14:00-18:15) Kingsway Building, KSW.G.01 (Friday 9:00-13:00) and KSW.1.04 (Friday 13:00-18:15)

Schedule

Thursday 17 October 2013

	11:15 - 11:45 coffee break

11:45 - 12:15
Martin Gairing
Complexity and Approximation of the Continuous Network Design Problem

12:15 - 13:00
Elias Koutsoupias
Near-Optimal Multi- t535 p45b Tc 0.9(N)6(e)1

Babichenko (Caltech)	Approximate Nash Equilibria	notions of Nash equilibrium in games with a large number of players *n* and a constant number of actions *m*. Our main result states that even for constant complexity of an -well-supported Nash equilibrium is exponential in *n*.
Costis Daskalakis (MIT)	Reductions from Mechanism to Algorithm Design	Algorithmic mechanism design centers around the following question: How much harder is optimizing an objective over inputs that are furnished by rational agents compared to when the inputs are known? We present computationally efficient reductions from mechanism design (i.e. optimizing over rational inputs) to algorithm design (i.e. optimizing over known inputs) in general Bayesian settings. We also explore whether structural properties about optimal mechanisms can be inferred from these reductions. As an application, we present extensions of Myerson's celebrated single-item auction to multi-item settings.
Edith Elkind (Oxford)	A Characterization of Single-P76 r f 165.72 5026.2 503Iarizn18(-1.141 TD 23Iar)7(i9.36 T)6(z)1T -0	

Felix Fischer (Cambridge)	(Approximately) Optimal Impartial Selection	We study impartial mechanisms for selecting a member of a set of agents based on nominations by agents from that set. Here,

	Ordered Bidders	items. In this model, we compare the expected revenue of an auction to the monotone price benchmark: the maximum revenue that can be obtained from a bid vector using prices that are non-increasing in the bidder ordering and bounded above by the second-highest bid. I will discuss an auction with constant-factor approximation guarantee for identical items, in both unlimited and limited supply settings. Consequently, this auction is simultaneously near-optimal for essentially every Bayesian environment in which bidders' valuation distributions have non-increasing monopoly prices, or in which the distribution of each bidder stochastically dominates that of the next.

Ruta Mehta

		stronger result that an equilibrium can be identified while only learning a small fraction of the cost values.
Paul Spirakis (Liverpool)	Strong Bounds for Evolution in Networks	The work concerns evolutionary antagonism in undirected networks (graphs) and thus it concerns evolutionary game theory issues. Given is a network whose nodes are occupied by members of a resident population. Each member has a fitness normalized to one. A single non-resident (mutant) is then placed at a node, and has a fitness, usually bigger than one. Mutants and residents can copy themselves on neighbours, replacing the previous inhabitant. The selection of a node to copy itself on a random neighbour is based on a probabilistic experiment which gives more probability to bigger fitness. This process may result in (a) the whole net occupied by mutants (fixation) or (b) elimination of mutants (extinction). A main magnitude of interest is the probability of fixation (given the graph). Here we describe work done