



**Institute for Research in Fundamental Sciences
School of Computer Science**

One Day Workshop on Algorithmic Game Theory

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Google Research

Place: *IPM*- Institute for Research in Fundamental Sciences

29, July, 2010 (7 Mordad 1389)

10:00 - 17:00

Homepage: <http://www.cs.ipm.ac.ir/wcs/2010/wagt/>

Abstract:

Motivated by problems in online display ad allocation, we will survey recent developments in online stochastic allocation problems. In particular, we describe a 0.67-approximation algorithm for the online stochastic matching problem, a $1-\epsilon$ approximation for general online stochastic packing programs, and an online $1-1/e$ competitive algorithm for online generalized assignment problems. We discuss training-based techniques based on solving the primal or dual programs using the stochastic information, the idea of power-of-two choices in online decision making, and describe primal-dual online competitive algorithms in this context.

We also study a natural network creation game, in which each node locally tries to minimize its local diameter or its local average distance to other nodes, by swapping one incident edge at a time. The central question is what structure the resulting equilibrium graphs has, in particular, how well they globally minimize diameter. Our perspective enables simpler and more general proofs that get at the heart of network creation games.

¹ Dr. Mirrokni has received his PhD from MIT.