

Department of Applied Mathematics and Statistics
The Johns Hopkins University

THE NINTH ANNUAL ALAN J. GOLDMAN LECTURE

Éva Tardos
Department of Computer Science
Cornell University

Friday, December 7, 2007
203 Hodson Hall
Lecture: **11:00 a.m.**
followed by a luncheon reception
in 304 Whitehead Hall

GAMES IN NETWORKS

ABSTRACT

Network games play a fundamental role in understanding behavior in many domains, ranging from communication networks through markets to social networks. Such networks operate and evolve through interactions of large numbers of diverse participants. In light of these competing forces, it is surprising how efficient these networks are. It is an exciting challenge to understand the operation and success of these networks in game-theoretic terms: What principles of interaction lead selfish participants to form such efficient networks? In this talk we present a number of network formation and routing games. We focus on a couple of simple games that have been analyzed. One measure we study is to quantify the degradation of quality of solution caused by the selfish behavior of users, comparing the selfish outcome to a centrally designed optimum, or comparing outcomes with different levels of cooperation.

Please see the next page for a short biography of the speaker.

Éva Tardos

Éva Tardos is a Jacob Gould Schurman Professor of Computer Science at Cornell University. She was born and educated in Hungary, and received her Ph.D. at Eötvös University in Budapest, Hungary in 1984. After teaching at Eötvös and MIT, she joined Cornell in 1989. She is currently the chair of the Computer Science Department at Cornell. She is a member of the National Academy of Engineering and of the American Academy of Arts and Sciences, an ACM Fellow, an INFORMS Fellow, a Packard Fellow, and a Sloan Fellow, and was a Guggenheim Fellow and an NSF Presidential Young Investigator. She received the Fulkerson Prize in 1988 and the Dantzig Prize in 2006. She is Editor-in-Chief of *SIAM Journal of Computing*, and associate editor of several other journals including *Journal of the ACM* and *Combinatorica*. Tardos's research interest is algorithms and algorithmic game theory. Her work focuses on the design and analysis of efficient methods for combinatorial-optimization problems on graphs or networks. She is mostly interested in fast combinatorial algorithms that provide provably optimal or close-to-optimal results. She is most known for her work on network-flow algorithms, approximation algorithms for network flows, and cut and clustering problems. Her recent work focuses on algorithmic game theory, an emerging new area of designing systems and algorithms for selfish users.