INTERNATIONAL SCHOOL OF MATHEMATICS «GUIDO STAMPACCHIA»

72nd Course: *STOCHASTIC METHODS IN GAME THEORY*

ERICE-SICILY: 12 – 18 MAY 2022

Sponsored by the: · Italian Ministry of Education, University and Scientific Research · Sicilian Regional Government · GNCS-INdAM

PROGRAMME AND LECTURERS

Existence of equilibria in repeated games with long-run payoffs
• G. ASHKENAZI-GOLAN, London School of Economics, UK

Some recent results on Prophet inequalities with known or unknown distributions
• B. ZILIOTTO, Paris Dauphine University, FR

From experts to bandits. how to overcome losses and feel no regrets
• T. CESARI, Università degli Studi di Milano, IT

Congestion games with stochastic demand: from Bernoulli to Poisson
• M. SCHRÖDER, Maastricht University, NL

Information design, bayesian persuasion
• T. TOMALA, HEC Paris, FR

Modelling blockchain protocols: Consensus and fee markets
• B. MONNOT, Ethereum Foundation, Berlin, DE

Continuous patrolling games
• T. LIDBETTER, Rutgers University, Piscataway, NJ, US

A short and biased tutorial on social learning
• N. VIEILLE, Hec Paris, FR

Political competition with costly adjustments
• G. FOURNIER, AMU, Marseille, FR

Undecidability of existence of measurable equilibrium selections
• J. LEVY, University of Glasgow, UK

A game of second opinion
• Y. TSODIKOVICH, Aix-Marseille University, FR

The secretary problem with independent sampling
• T. OOSTERWIJK, Vrije Universiteit Amsterdam, NL

On a competitive selection problem
• D. PIZARRO, Université Toulouse, FR

Identifying the deviator
• E. SOLAN, Tel Aviv University, IL

Strategic investment and learning with private information
• N. KLEIN, Université de Montréal, CA

Fees, incentives, and efficiency in large double auctions
• S. JANTSCHGI, Universities of Zurich, CH

Strategic experimentation with Lévy bandits
• S. RADY, University of Bonn, DE

Repeated Prophet inequality
• R. SAONA, Institute of Science and Technology, Wien, AT

Active network and price of anarchy in multi-commodity routing games with variable demand
• V. DOSE, Sapienza Università di Roma, IT

Repeated prophet inequality
• A. ARADHYE, Czech Technical University in Prague, CZ

Folk Theorems in repeated games with switching costs
• A. PREDTETCHINSKI, Marseille University, FR

Regret-minimizing project choice
• E. SHMAYA, Stony Brook University, NY, US

Folk theorems in repeated games with switching costs
• X. VENEL, LUISS Guido Carli, Rome, IT

PURPOSE OF THE COURSE

The goal of this Course is to examine some recent developments of the interaction between stochastics and game theory. The focus will be on game theoretic models that heavily use stochastic tools and on stochastic methods that find relevant applications in game theory.

This Course will focus — not exclusively — on the following topics: Prophet inequalities and secretary problems; Bandit models; Congestion games under uncertainty; Strategic queues; Stochastic games; Learning in games; Information transmission on networks; Social learning; Games with a random number of players; Search games; Stochastic matching; Blockchain.

The speakers will be scholars in different fields: stochastics, economics, operations research, computer science, mathematics, control engineering etc.

APPLICATIONS

Persons wishing to attend the School are requested to write to:

Professor Marco SCARSINI
LUISS University
Viale Romania, 32 - 00197 Roma, Italy
email: *marco.scarsini@luiss.it*

PLEASE NOTE

Participants must arrive in Erice no later than 12 a.m. on 12nd May 2022.

POETIC TOUCH

According to legend, Erice, son of Venus and Neptune, founded a small town on top of a mountain (750 metres above sea level) more than three thousand years ago. The founder of modern history — i.e. the recording of events in a methodic and chronological sequence as they really happened without reference to mythical causes — the great Thucydides (~500 B.C.), writing about events connected with the conquest of Troy (1183 B.C.) said: *«After the fall of Troy some Trojans on their escape from the Achaei arrived in Sicily by boat and as they settled near the border with the Sicanians all together they were named Elymi: their towns were Segesta and Erice.»*

This inspired Virgil to describe the arrival of the Trojan royal family in Erice and the burial of Anchises, by his son Aeneas, on the coast below Erice. Homer (~1000 B.C.), Theocritus (~300 B.C.), Polybius (~200 B.C.), Virgil (~50 B.C.), Horace (~20 B.C.), and others have celebrated this magnificent spot in Sicily in their poems. During seven centuries (XIII-XIX) the town of Erice was under the leadership of a local oligarchy, whose wisdom assured a long period of cultural development and economic prosperity which in turn gave rise to the many churches, monasteries and private palaces which you see today.

In Erice you can admire the Castle of Venus, the Cyclopean Walls (~800 B.C.) and the Gothic Cathedral (~1300 A.D.). Erice is at present a mixture of ancient and medieval architecture. Other masterpieces of ancient civilization are to be found in the neighbourhood: at Motya (Phoenician), Segesta (Elymian), and Selinunte (Greek). On the Aegadian Islands — theatre of the decisive naval battle of the first Punic War (264-241 B.C.) — suggestive neolithic and paleolithic vestiges are still visible: the grottoes of Favignana, the carvings and murals of Levanzo.

Splendid beaches are to be found at San Vito Lo Capo, Scopello, and Cornino, and a wild and rocky coast around Monte Cofano: all at less than one hour's drive from Erice.

More information about the «Ettore Majorana» Foundation and Centre for Scientific Culture can be found on the WWW at the following address:
http://www.ccsem.infn.it

J. FLESCH – P. MERTIKOPOULOS – M. SCARSINI
DIRECTORS OF THE COURSE

G. BUTTAZZO – M. THÉRA
DIRECTORS OF THE SCHOOL

A. ZICHICHI
EMFCSC PRESIDENT