«ETTORE MAJORANA» FOUNDATION AND CENTRE FOR SCIENTIFIC CULTURE
TO PAY A PERMANENT TRIBUTE TO ARCHIMEDES AND GALILEO GALILEI, FOUNDERS OF MODERN SCIENCE AND TO ENRICO FERMI, THE "ITALIAN NAVIGATOR", FATHER OF THE WEAK FORCES

EMFCSC — ETTORE MAJORANA FOUNDATION AND CENTRE FOR SCIENTIFIC CULTURE

WORLD FEDERATION OF SCIENTISTS
Founded in Erice
Beijing, Geneva, Moscow, New York

INTERNATIONAL SCHOOL OF MATHEMATICS «GUIDO STAMPACCHIA»

75th Workshop: *MATHEMATICS AND COMPUTATION OF FINANCIAL ENGINEERING*

ERICE-SICILY: 1 – 7 SEPTEMBER 2021

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

PROGRAMME AND LECTURERS

Causal optimal transport and adapted Wasserstein distances in mathematical finance
• B. ACCIAIO, ETH, Zürich, CH

Mortality and healthcare: a stochastic control analysis under Epstein-Zin preferences
• J. AURAND, Dublin City University, IE

What if we knew what the future brings?
• P. BANK, TU Berlin, DE

Revisiting persistent private information
• J. CVITANIC, Caltech, Pasadena, CA, US

Stripping the discount curve – a robust machine learning approach
• D. FILIPOVIC, EPFL, Lausanne, CH

Entropy Martingale optimal transport and nonlinear Pricing-Hedging Duality
• M. FRITTELLI, Università di Milano, IT

Diamond trees and the forest expansion
• J. GATHERAL, City University of New York, NY, US

High-dimensional open markets in stochastic portfolio theory
• M. LARSSON, Carnegie Mellon University, Pittsburg, PA, US

Entropic optimal transport
• M. NUTZ, Columbia University, New York, NY, US

Distributionally robust portfolio maximisation and marginal utility pricing in one period financial markets
• J. OBŁOJ, University of Oxford, UK

Non-asymptotic convergence rates for mean-field games: weak formulation and McKean– Vlasov BSDEs
• D. POSSAMAI, ETH, Zürich, CH

Adaptive joint distribution learning
• P. SCHNEIDER, USI, Lugano, CH

Revisiting and revising arbitrage theory
• M. SCHWEIZER, USI, Lugano, CH

Optimal Exploration of an Exhaustible resource: Implications for Behavior of Prices and Reserves
• P. TANKOV, ENSAE, Paris, FR

Equilibrium existence in a limited participation economy
• K. WESTON, Rutgers University, Piscataway, NJ, US

Measuring association with Wasserstein distances
• J. WIESEL, Columbia University, NY, US

PURPOSE OF THE WORKSHOP

This Workshop aims at presenting the state of the art of emerging topics in Financial Mathematics, which increasingly combine Stochastic Control and Optimization techniques with emerging computational techniques from Machine Learning and Operations Research. The workshop will illuminate on novel approaches including, but not limited to asset pricing, portfolio choice, high-frequency trading, blockchain technologies and cryptocurrencies, market frictions, and equilibrium models.

The emphasis will be on the use of innovative tools from stochastic control, differential equations, variational methods, dynamic optimization, and machine learning.

The Workshop will bring together academics and practitioners in the areas of Mathematics, Engineering, and Economics, who are conducting cutting edge research in those topics. We expect the synergetic interactions between these communities will give rise to collaborations, which will attack the increasing complex problems arising in financial mathematics and technology.

APPLICATIONS

Given the current epidemiological situation, a maximum limit of 60 attendees in the classroom has been established (teachers included); however, there is the possibility of unlimited "remote" attendance. For information contact:

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DUBLIN, Ireland
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• PLEASE NOTE
Participants must arrive in Erice no later than 12 a.m. on 1st September June 2021.

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

A. CAPPONI – P. GUASONI
DIRECTORS OF THE WORKSHOP

F. GIANNESSI – G. BUTTAZZO – M. THÉRA
DIRECTORS OF THE SCHOOL

A. ZICHICHI
EMFCSC PRESIDENT