



«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



INTERNATIONAL SCHOOL OF MATHEMATICS «GUIDO STAMPACCHIA»

70th Workshop: *MATHEMATICAL AND COMPUTATIONAL EPIDEMIOLOGY OF INFECTIOUS DISEASES – MATHEMATICALLY SHAPING GLOBAL & LOCAL PUBLIC HEALTH POLICIES*

ERICE-SICILY: 28 AUGUST – 5 SEPTEMBER 2018

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

PROGRAMME AND LECTURERS

Age-structured Modeling in Mathematical Epidemiology
Behavioural Epidemiology of Infectious Diseases
Big data based inferences for Epidemiology of Infectious Diseases
Complexity and Epidemics/Pandemics
Demography and Spread: the impact of their interplay
Emerging and Re-emerging Infectious Diseases
Individual-Based Model of the Spread and control of Infectious Diseases
Modeling Vaccinations of Elderly People
Network-Based Modeling of the Spread and Control of Infectious Diseases
Optimal control of Public Health Interventions
Pandemics Modeling
Post-Trust Society: its implications for Modeling
Science with and for Society: its role in mathematical and computational Epidemiology Research
Seasonality: its impact on the Infectious Disease Spread
Spatio-temporal Modeling of Infectious Diseases Spread and Control
Statistical Physics of the Spread of Infectious Diseases
Statistical Physics of Vaccination
Stochastic Modeling
Surveillance Systems
Vector-Borne Diseases: new challenges

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- V. CAPASSO, Milan University, IT
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- N. FERGUSON, Imperial College, London, UK
- A.M. PRESANIS, Cambridge University, Cambridge, UK
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- M. GAMBHIR, Monash University, Melbourne, VIC, AU
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- A. GUMEL, Arizona State University, Tempe, AZ, US
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- M. IANNELLI, Trento University, IT
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- C. MANORE, Tulane University, Los Alamos National Laboratory, Los Alamos, NM, US
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- M. PASCUAL, University of Chicago, Chicago, IL, US
- L. PELLIS, Warwick University, Coventry, UK
- A. PUGLIESE, European Society for Mathematical and Theoretical Biology; Trento University, IT
- P. ROHANI, University of Georgia, Athens, GA, US
- T. SMITH, Swiss Tropical and Public Health Institute, Basel, CH
- A. TOMPKINS, Abdus Salam International Centre for Theoretical Physics, Trieste, IT
- E. VENTURINO, Turin University, IT
- A. VESPIGNANI, Northeastern University, Boston, MA, US
- Z. WANG, Northwestern Polytechnical University, Xi'an, CN

PURPOSE OF THE WORKSHOP

Mathematical and Computational Epidemiology (CME) has not only an important theoretical value *per se*. Indeed, it has and it will have, in the near future, a deep impact on the life of citizens. Thus, modelling could become one of the most important tools to shape contemporary Local and Global Public Health Policies. However, although the point of view of Public Health Sciences and Policies (PHSP) is often quite unusual for mathematician and physicists, in this Workshop we want to stress that it will be increasingly important for new generations of math modellers. Qualitative and statistical features of temporal and spatio-temporal patterns of the spread of infectious diseases are well-known in PHSP. However, in PHSP the mechanistic links between the onset of patterns and basic contagion, recurrent social phenomena, mobility & demographic phenomena etc., are less known, as for how to act on these links to control the disease spread. Generations of theoretical investigators worked and are working to elucidate these links, by many innovative approaches. The Challenge is to transform a conceptual tools and big-data based investigations into practical solutions for PH. The aim of this International Workshop is twofold. The first is to illustrate the major current areas of research in CME and of its interplay with PHSP. This will be done by means of a series of outstanding invited lectures focused on the personal research of outstanding scientists. Models of various degrees of complexity are synergistically interplaying in this discipline. They are both needed and complementary, and in this workshop will be both present. The second and major aim, in line with the great tradition of the International Centre "Ettore Majorana", is to foster learning by frank peer-to-peer discussion between invited speakers and other researchers, junior investigators as well as PhD students, which can submit contributed talks and posters. Dialog without Frontiers is at basis of Science.

APPLICATIONS

Persons wishing to attend the workshop and to deliver a short communication should apply by using website: <https://erice2015.wordpress.com/> or apply in writing to the Chair Organizer of the Workshop:
Professor Alberto D'ONOFRIO
E-mail: alberto.donofrio@i-pri.org – E-mail: erice2018@i-pri.org

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 Sicani 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 Anchise, by his son Enea, 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.

PLEASE NOTE

Participants are expected to arrive in Erice on 28 August, no later than 5 p.m.

More information about the other activities of the
«ETTORE MAJORANA» FOUNDATION AND CENTRE FOR SCIENTIFIC CULTURE
can be found on the WWW at the following address:
<http://www.ccsem.info.it>