«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»

68th Course: *GRAPH THEORY, ALGORITHMS AND APPLICATIONS*

ERICE-SICILY: 5 – 13 MAY 2017

Sponsored by the: • Italian Ministry of Education, University and Scientific Research • Sicilian Regional Government • • Mathematics Department, University of Salerno • Computer Science, System and Production Department, University of Rome "Tor Vergata"

PROGRAMME AND LECTURERS

Distributed systems
Approximation algorithms on graphs
Linear and non linear mixed integer optimization
Combinatorial optimization and polyedral analysis
Online network design with outliers
Network optimization and flows
Graphs and the value of integration in logistics
Combinatorial problems on dynamic graphs
Graph algorithms
Optimization in routing problems

- P. BOLDI, University of Milan, IT
- S. CHECHIK, Tel-Aviv University, IL
- J. LEE, University of Michigan, Ann Arbor, MI, US
- A. LODI, Polytechnique Montréal, QC, CA
- P. SANKOWSKI, University of Warsaw, PL
- M. SKUTELLA, Technische Universität Berlin, DE
- C. ARCHETTI, University of Brescia, IT
- M.G. SPERANZA, University of Brescia, IT
- O. SVENSSON, École Polytechnique Fédérale de Lausanne, CH
- R. TARJAN, Princeton University and Microsoft Research, NJ, US
- P. TOTH, University of Bologna, IT

PURPOSE OF THE COURSE

The Mathematical Theory of Graph, founded by L. Euler, has applications in many fields; they typically require multidisciplinary approaches. The huge number of important problems, that can be modeled by means of graph theory, and the techniques used in this research area, ask for the interaction of different types of skills from several disciplines, such as, for example, mathematics, computer science, optimization, statistics, etc. This Course is the 2nd edition of a successful one, that took place at the Ettore Majorana Centre on September 2008, and is one of the rare occasions for promoting such an interaction. The course aims mainly at bringing together leading scientists, junior researchers and PhD students from several areas in order to discuss, possibly in a systematic and organic way, different approaches for solving graph problems. Internationally renowned speakers will take plenary lectures related to advanced topics in the field of Graph Theory and its applications. The intended audience consists of PhD students and junior researchers interested in graph problems, coming from several areas including – but not limited to – the design, analysis and experimentation of algorithms, operations research, optimization, and discrete mathematics. More in details, the objectives of the course are: 1) emphasizing the importance and the potentialities of graph theory in solving more and more complex problems arising in real world applications; 2) explaining and presenting the classical methodologies, models and algorithms (belonging to different disciplines) that turned out to be the most important and efficient; 3) showing and pointing out the newest and most relevant research areas that are more suitable to model and describe the actual problems in the field of graph theory.

APPLICATIONS

Persons wishing to attend the Course and possibly to contribute a lecture should contact:

Professor Raffaele Cerulli
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specifying: 1) Data and place of birth, together with present nationality; 2) Affiliation; 3) Address, e-mail address. Young persons with only limited experience should enclose a scientific curriculum vitae and a letter of recommendation from the head of their research group or from a senior person active in the field. Website of the school is:

http://www.graphalgorithms.it/erice2017/index.php

Application through the web site of the school is strongly encouraged.

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 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.

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.infn.it

PLEASE NOTE

Closing date for application: 15 April, 2017.
Participants are expected to arrive in Erice on May 5, no later than 5 p.m.

R. CERULLI – A. GOLDBERG – G.F. ITALIANO – R.E. TARJAN
DIRECTORS OF THE COURSE

F. GIANNESSI – M. THÉRA
DIRECTORS OF THE SCHOOL

A. ZICHICHI
PRESIDENT OF THE EMFCSC