



«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»

## 69<sup>th</sup> Workshop: *VARIATIONAL ANALYSIS AND APPLICATIONS*

dedicated to Professor Alexander Ioffe in the occasion of his 80<sup>th</sup> birthday  
The Award of the Sixth Gold Medal "G. Stampacchia"

**ERICE-SICILY: 28 AUGUST – 5 SEPTEMBER 2018**

Sponsored by the: • Italian Ministry of Education, University and Scientific Research • Sicilian Regional Government •  
• University of Catania • Istituto Nazionale di Alta Matematica (GNAMPA)

### PROGRAMME AND LECTURERS

*Minimax Problems*  
*Differential Inclusions*  
*Inverse Problems*  
*Relaxation Methods*  
*Stochastic Variational Problems*  
*Partial Differential Equations*  
*Calculus of Variations*  
*Optimal Control*  
*Optimization*  
*Infinite Dimensional Duality and Applications*  
*Numerical Analysis*  
*Operations Research*  
*Mathematical Programming*  
*Operator Theory*  
*Functional Analysis*  
*Potential Theory*  
*Continuum Mechanics*  
*Convex Analysis*  
*Systems Theory*  
*Global Analysis*  
*Real Analysis*  
*Probability Theory*

- H. BERESTYCKI, École des Hautes Études en Sciences Sociales, Paris, FR
- L. BOCCARDO, University of Rome "La Sapienza", Rome, IT
- J. BOLTE, Université Toulouse I, Toulouse, FR

- A. BRESSAN, Penn State University, University Park, PA, US
- P. CANNARSA, University of Rome "Tor Vergata", Rome, IT
- A. CHAMBOLLE, École Polytechnique, Palaiseau Cédex, FR
- F. CLARKE, Université Claude Bernard Lyon 1, Villeurbanne Cédex, FR
- P.L. COMBETTES, North Carolina State University, Raleigh, NC, US
- R. COMINETTI, Universidad Adolfo Ibáñez, Santiago, CL
- B. DACOROGNA, École Polytechnique Fédérale de Lausanne, CH
- G. DAL MASO, SISSA, Trieste IT
- C. DE LELLIS, University of Zurich, CH
- A.L. DONTCHEV, University of Michigan, Ann Arbor, MI, US
- D. DRUSVYATSKIY, University of Washington, Seattle, WA, US
- R. ELSTER, Martin-Luther-University of Halle-Wittenberg, Halle, DE
- M. FABIAN, Czech Academy of Sciences, Praha, CZ
- F. FACCHINEI, University of Rome "La Sapienza", Rome, IT
- J. FADILI, ENSICAEN, Caen Cédex, FR
- H. FRANKOWSKA, Université Pierre et Marie Curie, Paris 6, FR
- N. FUSCO, University of Naples "Federico II", Naples, IT
- A. IOFFE, Israel Institute of Technology, Haifa, IL
- A.A. KHAN, Rochester Institute of Technology, Rochester, NY, US
- P. MARCELLINI, University of Florence, IT
- P.M. PARDALOS, University of Florida, Gainesville, FL, US
- B.T. POLYAK, Russian Academy of Sciences, Moscow, RU
- M. TEBoulLE, Tel-Aviv University, Tel Aviv, IL
- M. THÉRA, University of Limoges, FR
- F. TOMARELLI, Polytechnic University of Milan, IT

#### PURPOSE OF THE WORKSHOP

The workshop aims at presenting the state-of-the-art and current research directions in variational analysis and partial differential equations.

Variational methods have a rich history, which can be traced back to D. Hilbert and the modern variational approach of PDES. Since, its range of applications has significantly expanded, so as to become a new mathematical discipline, called *Variational Analysis*. The term itself was coined by Rockafellar and Wets in their 1998 book entitled *Finite Dimensional Setting*, and by Attouch, Buttazzo, and Michaille in their 2006 book entitled *Infinite Dimensional Setting*. In particular, several classical and new theories have received a strong impulse for effective solutions to until now unsolved problems. These theories include: infinite dimensional duality and zero duality gap, minimax problems, variational principles and fixed points problems, Jacobian and Hessian equations, degenerate problems, variational problems with measurable coefficients, inverse variational problems, second order optimality conditions, infima over sub-level sets, stochastic variational inequalities and optimization problems, variational and differential inclusions.

The workshop aims at offering a review of the results achieved in the above research themes, specifying the used methods and pointing out the open problems together with outlines of the new research trends in the principal topics of variational analysis and applications.

During the opening ceremony of the International Workshop, a Gold Medal in honour of Guido Stampacchia will be assigned for the sixth time, after an international competition, to a young mathematician, whose age be not greater than 35 years at the date of December 31st 2018, for his scientific contribution in the field of Variational Analysis.

#### APPLICATIONS

Persons wishing to attend the workshop and to deliver a short communication should apply by using the website [varana.org/2018](http://varana.org/2018) (Registration & Abstract Submission) or in emailing to:

[info@varana.org](mailto:info@varana.org)

#### PLEASE NOTE

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

#### 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 Sicilians 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 Corino, 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.csem.infn.it>