



«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 ETHOLOGY «DANILO MAINARDI»

**45<sup>th</sup> Course: *SEX DIFFERENCES, DIMORPHISMS, DIVERGENCES:  
IMPACT ON BRAIN AND BEHAVIOUR IN HEALTH AND DISEASE***

**ERICE-SICILY: 20 – 25 MAY 2019**

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

## PROGRAMME AND LECTURERS

*The Erice Center for Scientific Culture and The International School of Ethology  
"Danilo Mainardi"*

• STEFANO PARMIGIANI, University of Parma, IT

*Introduction to the Course*

• M. McCARTHY University of Maryland School of Medicine, Baltimore, US  
• P. PALANZA, University of Parma, IT

*Evolution of anisogamy, sexual selection and sexual conflict*

• A. PILASTRO, University of Padova, IT

*Sex differences in the songbird brain: Hormone plasticity and behavior*

• G. BALL, University of Maryland, College Park, MD, US

*Human gender development*

• M. HINES, University of Cambridge, UK

*Rethinking sex and the brain: from dimorphism to mosaic*

• D. JOEL, Tel Aviv University, Tel Aviv, IL

*Sex partner preference in animals and humans*

• J. BALTHAZART, University of Liege, BE

*'The two shall become one flesh. This is a great mystery' (Eph 5:31b-32a)*

• Fr. A. FRIGERIO, Arcidiocesi di Milano, Teologia, Milano, IT

*Sex differences and similarities in the neurobiology of pair bonding*

• L. YOUNG, Emory University, Atlanta, GA, US

*Sex differences in stress regulation of arousal and cognition*

• D. BANGASSER, Temple University, Philadelphia, PA, US

*Sex biased impact of genetic and environmental factors*

• P. PALANZA, University of Parma, IT

*Sex-dependent regulation of hypothalamic neuropeptide Y-Y1 receptor*

• I. BERTOCCHI, University of Torino, IT

*Immune origins of sex differences in the brain*

• M. McCARTHY, University of Maryland School of Medicine, Baltimore, MD, US

*Sex-biased brain development in humans: Maps, mechanisms and meanings*

• A. RAZNAHAN, NIH, Bethesda, MS, US

*Sex differences in kisspeptin expression: A role in sexual differentiation*

• C. ROSSELLI, Oregon Health and Science University, Portland, OR, US

*Sex differences caused by sex chromosome genes*

• A.P. ARNOLD, University of California, Los Angeles, CA, US

*Regulation and 3 D structure of the X chromosome and impact on sex chromosome disorders*

• C. DISTECHE, University of Washington, Seattle, WA, US

*Evolution of sex differences in trait- and age-specific vulnerability*

• D. GEARY, University of Missouri, Columbia, MO, US

*Influence of sex and age on pain perception and morphine action*

• A. MURPHY, Georgia State University, Atlanta, GA, US

*Mechanisms underlying increased anxiety and cognitive decline induced by ovarian hormone loss*

• K. SANDBERG, Georgetown University, Washington, DC, US

### PURPOSE OF THE COURSE

The overall purpose of the Course is to explore the extent to which sex differences affect brain and behavior, contribute to vulnerability to disease and how cultural and societal roles intersect with the biological basis of sex. The Course will focus on several topic areas to increase our understanding of the mechanisms by which sex and gender, in animal models and people, respectively, influence health and disease. The format will involve talks by international renowned scientists, who have been engaged in research comprising multidisciplinary approaches from sexual selection to epigenetic mechanisms, from behavior to gender medicine, from biology to culture. All speakers are prepared to discuss how their research relates to concepts arising from the other disciplines to facilitate a highly interdisciplinary and interactive Course for all the participants.

### APPLICATIONS

Persons wishing to attend the Course should apply writing to:  
Professor Paola Palanza, University of Parma, Italy  
E-mail: [paola.palanza@unipr.it](mailto:paola.palanza@unipr.it)

### PLEASE NOTE

Participants are expected to arrive in Erice on May 20, 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.ecsem.jufni.it>

### 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 Cornino, and a wild and rocky coast around Monte Cofano: all at less than one hour's drive from Erice.