

«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



**SUMMARY
 OF THE 2022 COURSES – ERICE**



All Courses are sponsored by the World Federation of Scientists (WFS), the Sicilian Regional Government (ERS), the Italian Ministry of Education, University and Scientific Research and the Galileo Galilei Foundation (GGF). Some of the Courses are under the sponsorship of the Italian Ministry of Foreign Affairs, the Italian Ministry of Health, the North Atlantic Treaty Organization (NATO), the American National Science Foundation (NSF), the Italian National Research Council (CNR), the Weizmann Institute of Science, the European Physical Society (EPS), the Italian National Institute for Nuclear Physics (INFN), the Enrico Fermi Historical Museum of Physics and Study and Research Centre, the World Wildlife Fund (WWF), the Commission of the European Communities (CEC), some of the main Italian and foreign Universities and Research Centres, and the World Laboratory

- **INTERNATIONAL SCHOOL OF QUANTUM ELECTRONICS**
 Directors: A.N. CHESTER – D.S. WIERSMA
 65th Course: *The frontiers of attosecond and ultrafast X-ray science*
 Directors: L. DIMAURO – M. NISOLI
 20 – 26 March 2022
- **INTERNATIONAL SCHOOL OF EPIDEMIOLOGY AND PREVENTIVE MEDICINE «GIUSEPPE D’ALESSANDRO»**
 Directors: G.M. FARA – G. GIAMMANCO – C. SIGNORELLI – M. SZKLO – F. VITALE
 58th Course: *Produzione e valutazione di linee guida nel campo della sanità pubblica*
 Directors: F. AUXILIA – E. TORRI – L. MOJA
 28 March – 1 April 2022
- **INTERNATIONAL SCHOOL OF PHARMACOLOGY «GIAMPAOLO VELO»**
 Director: P. MINUZ
 90th Workshop: *Food supplements vigilance systems in a public health perspective: The European context*
 Directors: F. MENNITI-IPPOLITO – U. MORETTI – G. VO VAN REGNAULT
 3 – 6 April 2022
- **INTERNATIONAL SCHOOL OF CARDIAC SURGERY**
 Director: U.F. TESLER
 8th Course: *Evaluation and management of the multifactorial issues in the care of the complex cardiovascular surgical patient*
 Directors: G. GEROSA – J.R. PEPPER – M. PILATO – U.F. TESLER
 9 – 15 April 2022
- **INTERNATIONAL SCHOOL OF SOLID STATE PHYSICS**
 Director: G. BENEDEK
 77th Workshop: *Quantum fluid clusters*
 Directors: G.E. DOUBERLY – A.F. VILESOV
 18 – 23 April 2022
- **INTERNATIONAL SCHOOL OF ETHOLOGY «DANILO MAINARDI»**
 Directors: P. PALANZA – S. PARMIGIANI
 48th Course: *Darwin in medicine: Why evolution is relevant for research and medical practice*
 Directors: P. PALANZA – S. PARMIGIANI
 19 – 23 April 2022
- **INTERNATIONAL SCHOOL OF NONEQUILIBRIUM PHENOMENA**
 Directors: A. LANZARA – M.G. PALMA – B. SPAGNOLO
 1st Course: *If noise from condensed matter physics to quantum technologies*
 Directors: A.A. BALANDIN – Y. GALPERIN – P. HAKONEN – E. PALADINO – A. USTINOV
 24 – 30 April 2022

- INTERNATIONAL SCHOOL ON TREASURES OF ART AND SCIENCE
Director: L. ZICHICHI
11th Seminar:
Director: FAZIO
29 April – 1 May 2022
- INTERNATIONAL SCHOOL OF ETHOLOGY «DANILO MAINARDI»
Directors: P. PALANZA – S. PARMIGIANI
49th Course: *Mens sana in corpore sano: Psychobiological effects of physical activity*
Directors: D. CAPOROSSO – C.-C. COSTANTINO – S. PARMIGIANI – D. PONZI – A. SALE
1 – 4 May 2022
- INTERNATIONAL SCHOOL OF BIOPHYSICS «ANTONIO BORSELLINO»
46th Course: *Biophysics of channels and transporters*
Directors: A. ACCARDI – S. PLESS – P. TAMMARO
5 – 11 May 2022
- INTERNATIONAL SCHOOL OF MATHEMATICS «GUIDO STAMPACCHIA»
Directors: F. GIANNESI – now G. BUTTAZZO – M. THÉRA
72nd Course: *Stochastic methods in game theory*
Directors: J. FLESCHE – P. MERTIKOPOULOS – M. SCARSINI
12 – 18 May 2022
- INTERNATIONAL SCHOOL OF MATHEMATICS «GUIDO STAMPACCHIA»
Directors: F. GIANNESI – now G. BUTTAZZO – M. THÉRA
73rd Workshop: *Robustness and resilience in stochastic optimization and statistical learning: Mathematical foundations*
Directors: L. EL GHAOUI – A. JOFRE – F. MAGGIONI – J.O. ROYSET
19 – 25 May 2022
- INTERNATIONAL SCHOOL OF CARDIOLOGY
Directors: A. BRANZI – F. FEDELE – S. NOVO
22nd Workshop: *Advances in cardiovascular imaging and therapy*
Directors: F. FEDELE – S. NOVO
25 – 28 April 2022
- INTERNATIONAL SCHOOL OF NEUROSCIENCES «SIR JOHN ECCLES»
Directors: P.F. FERRARI – G. RIZZOLATTI
11th Course: *Oxytocin and vasopressin. From brain modulation to epigenetic regulation and clinical applications*
Directors: P.F. FERRARI – L. YOUNG
28 May – 2 June 2022
- INTERNATIONAL SCHOOL OF CRYSTALLOGRAPHY
Director: T.L. BLUNDELL
56th Course: *Diffuse scattering: The crystallography of dynamics, defects, and disorder*
Directors: N. ANDO – A. GOODWIN
3 – 11 June 2022
- INTERNATIONAL SCHOOL OF CRYSTALLOGRAPHY
Director: T.L. BLUNDELL
57th Course: *High pressure crystallography*
Directors: K. DZIUBEK – S. DEEMYAD – H. MAYNARD-CASELY
3 – 11 June 2022
- HYDROGEN SYMPOSIUM
Directors: C. GALBIATI – S.F. ZICHICHI
11 – 15 June 2022
- INTERNATIONAL SCHOOL OF SUBNUCLEAR PHYSICS
Directors: A. ZICHICHI – A. ZOCCOLI
58th Course: *Gravity and matter in the Subnuclear world*
Directors: G. 't HOOFT – A. ZOCCOLI
15 – 24 June 2022
- INTERNATIONAL SCHOOL OF STATISTICAL PHYSICS
Directors: P. HÄNGGI – F. MARCHESONI
21st Course: *Artificial and intelligent living matter*
Directors: A. DOOSTMOHAMMADI – M. MAZZA – T. SHENDRUK – H. STARK
26 June – 1 July 2022

- INTERNATIONAL SCHOOL OF SOLID STATE PHYSICS
Director: G. BENEDEK
78th Course: *Fundamental mechanisms to drive progresses in organic, and large-area bioelectronics*
Directors: F. BISCARINI – R. OWENS – A. SALLEO – L. TORSI
3 – 9 July 2022
- INTERNATIONAL SCHOOL OF SOLID STATE PHYSICS
Director: G. BENEDEK
79th Course: *Structured materials and structured light*
Directors: F. CAPASSO – M.S. VITIELLO
3 – 9 July 2022
- INTERNATIONAL SCHOOL OF SOLID STATE PHYSICS
Director: G. BENEDEK
80th Course: *Epioptics & Xenos*
Directors: A. CRICENTI – A. MOLLE
3 – 9 July 2022
- INTERNATIONAL SCHOOL OF MATERIALS FOR SUSTAINABLE DEVELOPMENT AND ENERGY
Director: A. TERRASI
2nd Course: *Macromolecular science for advanced and sustainable materials*
Directors: A. ANASTASAKI - S.C. CARROCCIO – B. SUMERLIN
10 – 14 July 2022
- INTERNATIONAL SCHOOL OF BIOLOGICAL MAGNETIC RESONANCE
Director: J.D. PUGLISI
18th Course: *Frontiers in biophysics and structural biology*
Directors: J.D. PUGLISI – E. VIANI PUGLISI
10 – 18 July 2022
- INTERNATIONAL SCHOOL OF MATERIALS FOR SUSTAINABLE DEVELOPMENT AND ENERGY
Director: A. TERRASI
3rd Course
Director: A. TERRASI
14 – 18 July 2022
- INTERNATIONAL SCHOOL OF NANOMEDICINE
Directors: M. FERRARI – M.E. MASSERINI
5th Workshop
Director: M.E. MASSERINI
20 – 27 July 2022
- INTERNATIONAL SCHOOL OF CARDIOLOGY
Directors: A. BRANZI – F. FEDELE – S. NOVO
23rd Workshop: *Advances in cardiovascular imaging and therapy*
Directors: F. FEDELE – S. NOVO
20 – 27 July 2022
- INTERNATIONAL SCHOOL OF COSMIC RAY ASTROPHYSICS «MAURICE M. SHAPIRO»
22nd Course: *From cosmic particles to gravitational waves: Now and to come*
Directors: J.R. HÖRANDEL – T.S. STANEV – J.P. WEFEL
30 July – 7 August 2022
- ERICE INTERNATIONAL SEMINARS ON PLANETARY EMERGENCIES
Chairman: A. ZICHICHI
54th Session – Co-Chairman: T.D. LEE
18 – 24 August 2022
- INTERNATIONAL SCHOOL OF SOLID STATE PHYSICS
Director: G. BENEDEK
81st Course: *Dynamics of electrons in atomic and molecular nanoclusters*
Directors: K. HANSEN – V.V. KRESIN
25 – 31 August 2022
- INTERNATIONAL SCHOOL OF COMPLEXITY
Director: A. ZICHICHI – Co-Directors: G. BENEDEK – M. GELL-MANN – A. RAPISARDA – C. TSALLIS
17th Course: *Stochastic forecasting in complex systems*
Directors: R. MANTEGNA – A. RAPISARDA
25 – 31 August 2022

- INTERNATIONAL SCHOOL OF MATHEMATICS «GUIDO STAMPACCHIA»
Directors: F. GIANNESSE – now G. BUTTAZZO – M. THÉRA
74th Course: *Topological methods in physical sciences*
Director: R.L. RICCA
1 – 7 September 2022
- INTERNATIONAL SCHOOL OF NEUROSCIENCES «SIR JOHN ECCLES»
Directors: P.F. FERRARI – G. RIZZOLATTI
12nd Course: *Comparative neurobiology of higher cognitive*
Directors: L. BONINI – A. GENOVESIO – P.F. FERRARI
9 – 14 September 2022
- INTERNATIONAL SCHOOL OF NUCLEAR PHYSICS
Directors: A. FAESSLER – now M. BUBALLA – C. FISCHER
43rd Course: *Neutrinos in cosmology, in astro, particle and nuclear physics*
Directors: M. BUBALLA – C. FISCHER
16 – 22 September 2022
- INTERNATIONAL SCHOOL ON MASS SPECTROMETRY
Director: G. GIORGI
1st Course: *High resolution mass spectrometry: Fundamentals, advances & applications*
Director: G. GIORGI
25 – 30 September 2022
- INTERNATIONAL SCHOOL OF STATISTICAL PHYSICS
Directors: P. HÄNGGI – F. MARCHESONI
22nd Course
Director: F. MARCHESONI
25 – 30 September 2022
- INTERNATIONAL SCHOOL OF IUS COMMUNE
Directors: M. BELLOMO – O. CONDORELLI – W. DECOCK – K. PENNINGTON
41st Course: *Ethics, public offices, and the ethical conduct of office holders*
Directors: O. CONDORELLI – H. REIMITZ
2 – 6 October 2022
- INTERNATIONAL SCHOOL OF PHARMACOLOGY «GIAMPAOLO VELO»
Director: P. MINUZ
92nd Workshop: *New strategies in the prevention of cardiovascular and metabolic disorders*
Directors: P. MINUZ – C. PATRONO
5 – 9 October 2022
- INTERNATIONAL SCHOOL OF QUANTUM ELECTRONICS
Directors: A.N. CHESTER – D.S. WIERSMA
66th Course: *The foremost photonics 2022*
Directors: C. TONINELLI – P.D. GARCIA – M. CIENTINI
10 – 14 October 2022
- INTERNATIONAL SCHOOL OF SOLID STATE PHYSICS
Director: G. BENEDEK
82nd Workshop: *Unconventional computing: Materials science, informatics, hardware, software*
Directors: A. ADAMATZKY – M. FANCIULLI – W.G. VAN DER WIEL
20 – 26 October 2022
- INTERNATIONAL SCHOOL OF MATHEMATICS «GUIDO STAMPACCHIA»
Directors: F. GIANNESSE – now G. BUTTAZZO – M. THÉRA
75th Course: *Analysis, control, and numerics for PDE models of interest to physical and life sciences*
Directors: F. ALABAU-BOUSSOUIRA – P. BENNER – P. CANNARSA
28 October – 7 November 2022
- INTERNATIONAL SCHOOL OF DERMATOLOGY
Directors: G. BURG – B. GIANNOTTI
13rd Course: *Cutaneous oncology*
Directors: N. PIMPINELLI – L. ZICHICHI
9 – 13 November 2022

- INTERNATIONAL SCHOOL OF EPIDEMIOLOGY AND PREVENTIVE MEDICINE «GIUSEPPE D'ALESSANDRO»
Directors: G.M. FARA – G. GIAMMANCO – C. SIGNORELLI – M. SZKLO – F. VITALE
59th Course
Director: G.M. FARA
14 – 18 November 2022
- INFN ELOISATRON PROJECT
Director: A. ZICHICHI
66th Workshop: *New gas mixtures for MRPC-based detectors*
Directors: M. ABBRESCIA – M. GARBINI – R. NANIA
20 – 23 November 2022
- INTERNATIONAL SCHOOL OF BRAIN CELLS AND CIRCUITS «CAMILLO GOLGI»
Directors: E. D'ANGELO – C. GANDINI WHEELER-KINGSHOTT
7th Course: *Modeling the brain*
Directors: E. D'ANGELO – C. GANDINI WHEELER-KINGSHOTT
29 November – 3 December 2022
- INTERNATIONAL SCHOOL OF BIOPHYSICS «A. BORSELLINO»
47th Course: *Neuroepidemiology: Methods and clinical applications*
Directors: M. D'AMELIO – P. RAGONESE – G. SAVETTIERI
4 – 10 December 2022
- INTERNATIONAL SCHOOL OF WATER AND WATER SYSTEM
Directors: R. CAR – F. MALLAMACE – L.G.M. PETTERSON
4th Course
Director: F. MALLAMACE
12 – 18 December 2022

**More information about the activities of the Ettore Majorana Foundation
can be found on the WWW at the following address:
<http://www.ccsem.infn.it>**