



# SUMMARY OF THE 2025 COURSES – ERICE

All Courses are sponsored by the World Federation of Scientists (WFS), the Sicilian Regional Government, 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  
68th Course: *The frontiers of attosecond and ultrafast X-ray science*  
Directors: L. DI MAURO – M. NISOLI  
7 – 13 April 2025
- INTERNATIONAL SCHOOL OF MOLECULAR ONCOLOGY  
Director: F.M. BUONAGURO  
4th Course: *Advanced molecular biomarkers in oncology*  
Directors: A. BUDILLON – F.M. BUONAGURO  
13 – 16 April 2025
- INTERNATIONAL SCHOOL OF NONEQUILIBRIUM PHENOMENA  
Directors: A. LANZARA – M.G. PALMA – B. SPAGNOLO  
10th Course: *Applications and theoretical aspects on: Non-equilibrium phenomena, topology, superconductivity, and superfluidity*  
Directors: R. CITRO – C. GUARCELLO – D. VALENTI  
27 April – 1 May 2025
- INTERNATIONAL SCHOOL ON BIOELECTROMAGNETISM «ALESSANDRO CHIABRERA»  
Directors: F. BERSANI – M.R. SCARFÌ  
12th Course: *Advances in electroporation-based therapy: From principles to clinical applications*  
Directors: R. DAVALOS – M. LIBERTI  
2 – 7 May 2025
- INTERNATIONAL SCHOOL ON TREASURES OF ART AND SCIENCE  
Director: L. ZICHICHI  
19th Seminar  
Director: L. ZICHICHI  
8 – 9 May 2025
- INTERNATIONAL SCHOOL OF CARDIAC SURGERY  
Directors: G. GEROSA – U.F. TESLER  
10th Course: *Teaching, learning, doing*  
Directors: G. GEROSA – D. PACINI – M. PILATO – M. RINALDI  
10 – 13 May 2025
- INTERNATIONAL SCHOOL ON TREASURES OF ART AND SCIENCE  
Director: L. ZICHICHI  
20th Seminar: *Scientists for a day: the youngest in Erice*  
Director: L. ZICHICHI  
13 – 14 May 2025
- INTERNATIONAL SCHOOL OF SOLID STATE PHYSICS  
Director: G. BENEDEK  
89th Course: *Shaping space and time for high resolution optical imaging*  
Directors: A. BASSI – J.M. BUENO – G. CHIRICO  
14 – 20 May 2025

- INTERNATIONAL SCHOOL OF SOLID STATE PHYSICS  
 Director: G. BENEDEK  
 90th Course: *Dynamics of electrons in atomic and molecular nanoclusters*  
 Directors: K. HANSEN – V.V. KRESIN  
 21 – 27 May 2025
  
- INTERNATIONAL SCHOOL OF CRYSTALLOGRAPHY  
 Directors: T.L. BLUNDELL – now G. SCAPIN  
 60th Course: *Electron crystallography*  
 Directors: A. EGGEMAN – M. GEMMI – T. GORELIK  
 30 May – 7 June 2025
  
- INTERNATIONAL SCHOOL OF CRYSTALLOGRAPHY  
 Directors: T.L. BLUNDELL – now G. SCAPIN  
 61st Course: *Quantum crystallography*  
 Directors: J. CONTRERAS – P. DOMINIAK  
 30 May – 7 June 2025
  
- INTERNATIONAL SCHOOL ON TREASURES OF ART AND SCIENCE  
 Director: L. ZICHICHI  
 21st Seminar  
 Director: L. ZICHICHI  
 7 – 8 June 2025
  
- INTERNATIONAL SCHOOL OF NEUROSCIENCES «SIR JOHN ECCLES»  
 Directors: P.F. FERRARI – G. RIZZOLATTI  
 16th Course: *The role of the autonomic nervous system in stress response and resilience*  
 Directors: N. MONTANO – C. OTTAVIANI – A. SGOIFO  
 8 – 13 June 2025
  
- INTERNATIONAL SCHOOL OF SUBNUCLEAR PHYSICS  
 Directors: A. ZICHICHI – A. ZOCCOLI  
 61st Course: *What accelerators, precision and cosmic messengers teach us on subnuclear physics*  
 Directors: A. MASIERO – A. BÉTTINI  
 14 – 23 June 2025
  
- INTERNATIONAL SCHOOL OF NONEQUILIBRIUM PHENOMENA  
 Directors: A. LANZARA – M.G. PALMA – B. SPAGNOLO  
 11th Course: *Neuromorphic approaches to quantum computing*  
 Directors: M.G. PALMA – M. PATERNOSTRO  
 26 – 30 June 2025
  
- INTERNATIONAL SCHOOL OF STATISTICAL PHYSICS  
 Directors: P. HÄNGGI – F. MARCHESONI  
 26th Course: *Frontiers in water biophysics*  
 Directors: A. CESARO – L. COMEZ – G. FRANZESE  
 2 – 7 July 2025
  
- INTERNATIONAL SCHOOL OF ATOMIC AND MOLECULAR SPECTROSCOPY  
 Directors: B. DI BARTOLO – M. CESARIA  
 39th Workshop: *Tracks on Photonics: Advanced materials, devices and methods*  
 Director: M. CESARIA  
 2 – 10 July 2025
  
- INTERNATIONAL SCHOOL OF MATERIALS FOR SUSTAINABLE DEVELOPMENT AND ENERGY  
 Director: A. TERRASI  
 5th Course: *Materials for renewable and sustainability*  
 Director: D. CAHEN – D. GINLEY – R. O'HAYRE – A. SLAOUİ – A. TERRASI – A. WEIDENKAFF  
 8 – 15 July 2025
  
- INTERNATIONAL SCHOOL OF MATERIALS FOR SUSTAINABLE DEVELOPMENT AND ENERGY  
 Director: A. TERRASI  
 6th Course: *Sustainable food production under climate change*  
 Directors: A. LEVY – H. PUCHTA  
 10 – 15 July 2025

- INTERNATIONAL SCHOOL OF BIOLOGICAL MAGNETIC RESONANCE  
 Director: J.D. PUGLISI  
 21st Course: *Frontiers in biophysics*  
 Directors: J.D. PUGLISI – E. VIANI PUGLISI  
 17 – 24 July 2025
  
- INTERNATIONAL SCHOOL OF SCIENCE EDUCATION  
 Directors: P. LÉNA – A. PASCUCCI  
 4th Workshop: *Climate change education*  
 Director: D. WILGENBUS  
 17 – 24 July 2025
  
- INTERNATIONAL SCHOOL OF NANOMEDICINE  
 Directors: M. FERRARI – M. MASSERINI  
 8th Course: *Integrating biochemical insights to overcome clinical challenges in cancer nanomedicine*  
 Directors: F. CHIARADONNA – F. RE  
 25 – 29 July 2025
  
- INTERNATIONAL SCHOOL OF PHARMACOLOGY «GIAMPAOLO VELO»  
 Directors: M. LINDQUIST – P. MINUZ – U. MORETTI  
 95th Workshop: *Cancer and cardiovascular diseases: Common mechanisms and strategies of prevention*  
 Directors: V. BRONTE – B. BRÛNE – P. MINUZ – P. PATRIGNANI – D. STEINHILBER  
 27 – 30 July 2025
  
- INTERNATIONAL SCHOOL OF NONEQUILIBRIUM PHENOMENA  
 Directors: A. LANZARA – M.G. PALMA – B. SPAGNOLO  
 12th Course: *Understanding rare atmospheric events and their impacts*  
 Directors: S. BOURDIN – G. CAZZANIGA – D. FARANDA – M. GINESTA – R. NOYELLE  
 1 – 5 August 2025
  
- INTERNATIONAL SEMINARS ON PLANETARY EMERGENCIES  
 Chairman: A. ZICHICHI  
 57th Session – Co-Chairman: C. GALBIATI  
 7 – 13 August 2025
  
- INTERNATIONAL SCHOOL ON TREASURES OF ART AND SCIENCE  
 Director: L. ZICHICHI  
 22nd Seminar  
 Director: L. ZICHICHI  
 14 – 24 August 2025
  
- INTERNATIONAL SCHOOL OF MUSICAL SCIENCES  
 Director: R. GIULIANI  
 6th Course: *Santa Cecilia in Erice. Conservatory talents in concert*  
 14 – 24 August 2025
  
- INTERNATIONAL SCHOOL OF COMPLEXITY  
 Directors: A. ZICHICHI – Co-Directors: G. BENEDEK – A. RAPISARDA – C. TSALLIS  
 20th Workshop: *Higher-order interactions: Mechanisms, behaviours, and networks*  
 Directors: G. BIANCONI – D. MARINAZZO – G. PETRI – A. SCHWARZE  
 25 – 31 August 2025
  
- INTERNATIONAL SCHOOL OF NONEQUILIBRIUM PHENOMENA  
 Directors: A. LANZARA – M.G. PALMA – B. SPAGNOLO  
 13th Course: *Waveguide Quantum Electrodynamics – WQED*  
 Directors: H. BARÄNGER – D. CHANG – F. CICCARELLO – P. RABL  
 1 – 6 September 2025
  
- INTERNATIONAL SCHOOL OF NEUROSCIENCES «SIR JOHN ECCLES»  
 Directors: P.F. FERRARI – G. RIZZOLATTI  
 17th Course: *Neuromodulators of connection: Cutting-edge insights on oxytocin and vasopressin in social behaviour, cognition and therapy*  
 Directors: P.F. FERRARI – A. GUASTELLA – K. PARKER  
 9 – 14 September 2025
  
- INTERNATIONAL SCHOOL OF NUCLEAR PHYSICS  
 Directors: A. FAESSLER – M. BUBALLA – now C. FISCHER  
 46th Course: *QCD under extreme conditions – present and future*  
 Directors: C. FISCHER – T. GALATYUK  
 16 – 22 September 2025

- INTERNATIONAL SCHOOL OF GEOPHYSICS «ENZO BOSCHI»  
 Director: F. FLORINDO  
 43rd Workshop: *Frontiers in geophysics for the third millennium*  
 Directors: M.E. BELARDINELLI – M. DRAGONI – P. GASPERINI – A. MICHELINI – D. PANTOSTI – M. POMPILIO – G. VALENSISE  
 22 – 26 September 2025
- INTERNATIONAL SCHOOL OF STATISTICAL PHYSICS  
 Directors: P. HÄNGGI – F. MARCHESONI  
 27th Course: *Quantum technology from fundamental science to real world applications*  
 Directors: D. BAJONI – S.L. PORTALUPI – R. TROTTA  
 27 September – 2 October 2025
- INTERNATIONAL CONFERENCE ON FLAVOUR PHYSICS AND SPECTROSCOPY  
 Director: V. VAGNONI  
 3 – 10 October 2025
- INTERNATIONAL SCHOOL OF ETHOLOGY «DANILO MAINARDI»  
 Directors: P. PALANZA – S. PARMIGIANI  
 58th Course: *Epigenetics: From molecules to behaviour*  
 Directors: P. PALANZA – S. PARMIGIANI – D. PONZI – M. TOGNON  
 6 – 10 October 2025
- INTERNATIONAL SCHOOL OF SOLID STATE PHYSICS  
 Director: G. BENEDEK  
 91st Course: *Quantum complex matter superstripes*  
 Directors: G. AEPPLI – A. BIANCONI – Y. UEMURA  
 11 – 17 October 2025
- INTERNATIONAL SCHOOL OF SCIENTIFIC JOURNALISM AND COMMUNICATION  
 Director: P. CAMPANA  
 13th Course  
 Directors  
 12 – 16 October 2025
- INTERNATIONAL SCHOOL OF PRECISION MEDICINE AND LABORATORY  
 Directors: M. CIACCIO – F. SALVATORE  
 3rd Course: *Alzheimer's disease: From diagnosis to therapy*  
 Directors: M. CIACCIO – F. SALVATORE  
 17 October 2025
- INTERNATIONAL SCHOOL OF IUS COMMUNE  
 Directors: M. BELLOMO – O. CONDORELLI – W. DECOCK – K. PENNINGTON  
 44th Course: *Legal, cultural and religious pluralism: Aspects and problems in the tradition of the Ius Commune*  
 Directors: O. CONDORELLI – W. DECOCK  
 19 – 23 October 2025
- INTERNATIONAL SCHOOL ON MAGNETIC RESONANCE AND BRAIN FUNCTION  
 Director: B. MARAVIGLIA  
 14th Workshop: *Beyond the limits of magnetic resonance imaging for the study of human brain: Methodology and modeling*  
 Director: F. GIOVE  
 24 – 29 October 2025
- INTERNATIONAL SCHOOL ON PHYSICAL COMPUTING  
 Directors: A. CALÀ LESINA – W. PERNICE  
 1st Workshop: *Photonic computing and machine learning*  
 Directors: A. CALÀ LESINA – W. PERNICE – B. STILLER  
 30 October – 4 November 2025
- INTERNATIONAL SCHOOL OF NONEQUILIBRIUM PHENOMENA  
 Directors: A. LANZARA – M.G. PALMA – B. SPAGNOLO  
 14th Course: *Chaos and information dynamics in quantum many body systems*  
 Directors: V. GRITSEV – A. POLKOVNIKOV – A. SILVA  
 30 October – 4 November 2025

- INTERNATIONAL SCHOOL OF QUANTUM ELECTRONICS  
Directors: A.N. CHESTER – D.S. WIERSMA  
69th Course: *Progress in photoacoustic and photothermal phenomena: Focus on biomedical, nanoscale, NDE, gas sensing and thermophysical phenomena and technologies*  
Directors: A. MANDELIS – R. LI VOTI  
5 – 12 November 2025
  
- INTERNATIONAL SCHOOL OF ETHOLOGY «DANILO MAINARDI»  
Directors: P. PALANZA – S. PARMIGIANI  
59th Course: *Understanding and treating Autism Spectrum Disorders (ASD): Ethology, evolution and early development*  
Directors: M. BRUNE – C. COLOMBI – P. PALANZA – S. PARMIGIANI  
13 – 17 November 2025
  
- INTERNATIONAL SCHOOL OF MATHEMATICS «GUIDO STAMPACCHIA»  
Directors: F. GIANNESSE – now G. BUTTAZZO – M. THÉRA  
80th Course: *The mathematics of scientific machine learning and digital twins*  
Directors: H. ANTIL – E. ZUAZUA  
19 – 25 November 2025
  
- INTERNATIONAL SCHOOL OF PARTICLE ACCELERATORS «KJELL JOHNSEN, GUSTAV VOSS AND EDMUND WILSON»  
Directors: L. ROSSI – T.M. TAYLOR  
5th Course: *Higgs factories for the post-HiLumi LHC era*  
Directors M. FERRARIO – L. ROSSI – F. ZIMMERMANN  
26 November – 1 December 2025
  
- INFN ELOISATRON PROJECT  
Director: A. ZICHICHI  
68th Workshop  
Director: W.A. BARLETTA  
30 November – 5 December 2025
  
- INTERNATIONAL SCHOOL OF BRAIN CELLS AND CIRCUITS «CAMILLO GOLGI»  
Directors: E. D'ANGELO – C. GANDINI WHEELER-KINGSHOTT  
10th Course: *A decade of discovery: The Erice Camillo Golgi School – Modeling the brain from neurons to large-scale signals and digital twins in health and disease*  
Directors: E. D'ANGELO – C. GANDINI WHEELER-KINGSHOTT – V. JIRSA  
2 – 7 December 2025
  
- INTERNATIONAL SCHOOL OF EPIDEMIOLOGY AND PREVENTIVE MEDICINE «GIUSEPPE D'ALESSANDRO»  
Directors: G.M. FARA – G. GIAMMANCO – C. SIGNORELLI – M. SZKLO – F. VITALE  
63rd Course: *Preparedness in emergencies (public health)*  
Directors: S. CASTALDI – L. FABIANI  
9 – 13 December 2025
  
- INTERNATIONAL SCHOOL OF NONEQUILIBRIUM PHENOMENA  
Directors: A. LANZARA – M.G. PALMA – B. SPAGNOLO  
15th Course: *Beyond linearity: Frontiers in non-Hermitian many-body physics*  
Directors: F. BALDUCCI – P. BRIGHI – F. CICCARELLO – A. NUNNENKAMP – F. ROCCATI  
14 – 18 December 2025

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