



Università  
degli Studi  
di Palermo



UNIVERSITÀ DI PISA



UNIVERSITÀ  
DEGLI STUDI  
DI MILANO

# Physics for Health: New perspectives in medical applications and radiation safety

Registration  
Open!

Erice, Sicily  
May 8 – 12, 2026



## TOPICS:

- Advanced Radiation Therapies
- Radiobiology and Space Health
- Precision Medicine and Theranostics
- Innovations in Diagnostic Imaging
- Quantum and Next-Generation Detection Technologies
- AI and Computational Methods
- Emergency Response and Risk Communication

Course Directors:

*Maurizio Marrale, Francesco d'Errico, Cristina Lenardi*

INTERNATIONAL SCHOOL ON NONEQUILIBRIUM PHENOMENA

Directors of the School: Alessandra LANZARA, G. Massimo PALMA, Bernardo SPAGNOLO

# Physics for Health - Program

## May 8, 2026 - San Domenico Complex New Frontiers in Medicine

08:30 - 16:30	Registration
15:30 - 17:30	<b>Opening</b> <i>Maurizio Marrale, Francesco d'Errico, Cristina Lenardi, Bernardo Spagnolo</i> <b>Round Table "Proton Therapy in Sicily: Time to act?"</b> <i>Renato Schifani - Presidente Regione Siciliana</i> <i>Daniela Faraoni - Assessore Salute Regione Siciliana</i> <i>Massimo Midiri - Rettore Università di Palermo</i> <i>Adelfio Elio Cardinale - Presidente Comitato Garanti Unipa</i> <i>Fabrizio Banci Buonamici - Presidente AIFM</i> <i>Stefano Pergolizzi - Presidente AIRO</i> <i>Antonio Lo Casto - Università di Palermo</i> <i>Maurizio Marrale - Università di Palermo</i> <i>Giuseppe Ferrera - ARNAS Civico</i>
17:30 - 18:30	<b>Integration of Physics and Biology: developing advanced tools for modelling, optimisation and personalisation in radiation medicine</b> ( <i>T. KRON - Peter MacCallum Cancer Centre, Melbourne, Australia</i> )
18:30 - 19:30	<b>Space Medicine: Clinical risks, integrated physiological monitoring, and medical countermeasures for human performance in extreme space environments</b> ( <i>L. FREGONESE - European Medicines Agency, Amsterdam, Netherlands</i> )
20:00 - 22:00	Dinner
22:00	Almond sweet and Marsala at Marsala Room

## May 9, 2026 - San Domenico Complex Accelerators & Advanced Radiobiology

08:15 - 08:30	Opening - <i>F. Banci Buonamici, Italian Association of Medical Physics (AIFM)</i>
08:30 - 09:30	<b>Accelerator Innovations: Cyclotrons and LINACs for next-generation treatments</b> ( <i>L. ROSSI - University of Milan, Italy</i> )
09:30 - 10:30	<b>Radiobiology Across Scales: Mechanisms, Modeling, and Clinical Relevance for Modern Radiotherapy</b> ( <i>G. BAIOTTO - University of Pavia, Italy</i> )
10:30 - 11:00	Coffee break - San Rocco Complex

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11:00 - 12:00	Ion Beam Therapy in Practice: State of art and emerging challenges (A. CARLINO - MedAustron, Wiener Neustadt, Austria)
12:00 - 13:00	Experiments and Modeling in Proton Therapy: From energy deposition structure to biological response (E. MALINEN - University of Oslo, Norway)
13:00 - 15:00	Lunch
14:45 - 15:00	Opening - S. Pergolizzi. Italian Association of Radiation Therapy (AIRO)
15:00 - 16:00	FLASH and MiniBeam Dosimetry: Reference and in vivo dosimetry strategies for ultra-high dose rates and spatially fractionated radiation beams (G. BISOGNI - University of Pisa, Italy)
16:00 - 17:00	FLASH and minibeam radiobiology: Advancing the understanding through multiscale biophysical modeling (E. SCIFONI - Italian National Institute of Nuclear Physics, Trento, Italy)
17:00 - 19:30	Coffee break, Poster and Exhibitor Visits - San Rocco Complex
20:00 - 22:00	Dinner
22:00	Almond sweets and Marsala wine in the Marsala Room

## May 10, 2026 - San Domenico Complex Image Guidance & Theranostics

08:15 - 08:30	Opening - A. Bracco, Italian Physical Society (SIF)
08:30 - 09:30	Advanced Image-Guided Particle Therapy: Range verification workflows and real-time monitoring for precision guidance and adaptive verification in ion beam therapy (K. PARODI - Ludwig-Maximilians-Universität, Munich, Germany)
09:30 - 10:30	Advances in Theranostics: Quantitative imaging and patient-specific dosimetry for optimizing personalized radiopharmaceutical therapy and treatment response assessment (L. MENICHETTI - National Research Council, Pisa, Italy)

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10:30 - 11:00	Coffee break – San Rocco Complex
11:00 - 12:00	<b>tc-MRg-FUS: Technical principles, targeting strategies and clinical applications of transcranial MR-guided focused ultrasound for non-invasive brain therapy</b> (C. GAGLIARDO – University of Palermo, Italy)
12:00 - 13:00	<b>Neuromodulation and Neuromonitoring: Nanotechnology-based novel medical devices</b> (L. RAVAGNAN - WISE NEURO)
13:00 - 22:00	Excursion to Archeological Site of Segesta (packed lunch) and Conference Dinner in Erice
22:00	Almond sweets and Marsala wine in the Marsala Room

## May 11, 2026 - San Domenico Complex Sensors, AI & Simulation

08:15 - 08:30	Opening - R. Moccaldi, Italian Association of Medical Radiation Protection (AIRM)
08:30 - 09:30	<b>Quantum Sensing for Biomedical Applications: Principles of high-sensitivity quantum magnetometry and instrumentation for advanced clinical diagnostics and biomedical imaging</b> (M. GENOVESE - National Institute of Metrological research, Torino, Italy)
09:30 - 10:30	<b>Low-Frequency Electric and Magnetic Fields: biophysical interaction mechanisms, dosimetric modeling and clinical exposure</b> (G.M. CONTESSA – Istituto Superiore di Sanità, Rome, Italy)
10:30 - 11:00	Coffee break – San Rocco Complex
11:00 - 12:00	<b>Internal Dosimetry: Biokinetics modeling and quantitative organ dose estimates for radiation protection in nuclear medicine procedures</b> (A. GIUSSANI - Bundesamt für Strahlenschutz, Munich, Germany)
12:00 - 13:00	<b>AI in Medical Physics: Validation, safety and governance of artificial intelligence in radiation oncology</b> (A. DEKKER - Maastricht University, Netherlands)
13:00 - 15:00	Lunch

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15:00 - 16:00	Virtual Clinical Trials: Utilizing digital twins and in silico modeling for medical device development and clinical decision-making validation (G. METTIVIER - "Federico II" University of Naples, Italy)
16:00 - 17:00	In-vivo Dosimetry for External Beam Radiotherapy: Methods, devices and clinical results (M. ESPOSITO - Abdus Salam International Centre for Theoretical Physics, Trieste, Italy)
17:00 - 19:30	Coffee break, Poster and Exhibitor Visits - San Rocco Complex
20:00 - 22:00	Dinner
22:00	Almond sweets and Marsala wine in the Marsala Room

## May 12, 2026 - San Domenico Complex Ethics, Risk & Population

08:15 - 08:30	Opening - F. Mancini, Italian Association of Radiation Protection (AIRP)
08:30 - 09:30	Trends in Radiation Dose to the Population: Exposure metrics, optimization, and clinical value in diagnostic imaging (F. RIA - Duke University, Durham, NC, USA)
09:30 - 10:30	Physical Dosimetry for Radiological Emergencies: Retrospective dosimetry techniques and physical monitoring protocols for rapid assessment during accidental population radiation exposure (M. MARRALE - University of Palermo, Italy)
10:30 - 11:00	Coffee break - San Rocco Complex
11:00 - 12:00	Ethical Models for Radiobiology: Balancing experimental design, animal alternatives, and data sharing for responsible innovation in radiobiological research ethics (S. de SOUSA LALIC - Federal University of São Paulo, SP, Brazil)
12:00 - 13:00	Risk Communication: Strategies for communicating radiation uncertainty and transparency to build trust among patients, professionals, and the public (F. D'ERRICO - University of Pisa, Italy)
13:15 - 14:45	Lunch

# Registration

For registration to attend the School from May 8th - 12th, 2026, please use the [online registration](#) form and perform the payment.

The daily fee is €165 and covers meals (breakfast, lunch, dinner, and coffee breaks), accommodation, and transportation to and from Trapani or Palermo airports. For the School's total duration of four days, the total registration fee amounts to €660.

Payment should be performed by Bank transfer. The **bank details** are:

**ACCOUNT HOLDER:** Fondazione Ettore Majorana e Centro di Cultura Scientifica **BANK:** Unicredit Private Banking S.p.A.

**BRANCH:** 07858 TRAPANI,

**ADDRESS:** Via Garibaldi 9 - 91100 Trapani, Italy

**IBAN:** IT 47 I 02008 16407 000600000655

**BIC SWIFT:** UNCRITMM

**Reason for bank transfer:** Name, Surname, Physics for Health2026 - School "Nonequilibrium Phenomena - Spagnolo."

After making the payment, send a copy of the bank transfer to the email address [physicsforhealth2026@gmail.com](mailto:physicsforhealth2026@gmail.com). If payment by credit card is required, please contact us at the email address above.

Student support will be available and, all else being equal, will be prioritized for female students. For the application for support, eligible students are individuals under 35 enrolled in undergraduate, graduate, or postgraduate programs. For details, please contact us at [physicsforhealth2026@gmail.com](mailto:physicsforhealth2026@gmail.com).

**ECM accreditation has been requested (22 credits) for the following professional profiles:** medical physicists, nuclear medicine physicians, radiologists, radiation oncologists, radiologic technologists (TSRM), nurses, and occupational medicine and workplace safety professionals. **The Course is valid for 22 hours of professional continuing education for Radiation Protection Experts in accordance with DLgs 101/20.**

*Further information can be found on our [website](#)*