



«ETTORE MAJORANA» FOUNDATION AND CENTRE FOR SCIENTIFIC CULTURE
INTERNATIONAL SCHOOL ON
BIOELECTROMAGNETISM «ALESSANDRO CHIABRERA»

11th Course: “ Advances in Electroporation-Based Therapy: from Principles to Clinical Applications ”

Erice (Sicily, Italy): May 2 to 7, 2025

Directors of the Course: Micaela Liberti & Rafael Davalos

PROGRAM (18th February 2025)

DAY 1 - Friday, May 2nd

Theme: BASICS

Morning

09:00	Welcome to participants and Brief Overview of the School	Bersani&Scarfi
09:20	Welcome from BioEM Society	Peyman&Liberti
09:25	Welcome from ISEBTT Society	Emanuela Signori
09:30	Introduction and Course opening	Davalos&Liberti
09:40	An introduction to the pulsed electric fields delivery: from principles to applications	Lluis M. Mir
10:40	<i>COFFEE BREAK and Posters Hang up</i>	
11:10	Biophysical Mechanisms of Electroporation at the Cellular and Molecular Level	Lea Rems

12:10 **LUNCH**

Afternoon

14:00	Reversible effects of the pulsed electric fields delivery: what happens to the membranes?	Lluis M. Mir
14:30	Results of tissue exposure: irreversible electroporation (IRE / PFA)	Rafael Davalos
15:00	<i>COFFEE BREAK</i>	
15:30	Results of cell response for transfection	Maja Cemazar
16:00	Electroporation: in vitro and in vivo immune response	Emanuela Signori
16:30	Delivery of pulsed electric fields: a platform technology with multiple applications	Lluis M. Mir

DAY 2 - Saturday, May 3rd

Theme: ELECTRIC FIELD

Morning

09:00	Introduce the day: Considerations for electrode design and distribution for EP therapy	Rafael Davalos or Micaela Liberti
09:20	Electric Field Generators and Electrodes for reversible EP drug diffusion	Micaela Liberti
09:50	Electric Field Generators and Electrodes for IRE and PFA	Edward Jacobs
10:20	<i>COFFEE BREAK</i>	
10:50	Collateral Effects of Electroporation: Heating, Electrochemical Reactions, and Electrical Stimulation	Antoni Ivorra
11:30	Electric Field Coupling and Modeling	Stefania Romeo

Secretariat of the Centre:

Via Guarnotta 26 - 91016 Erice, Italy – Tel. 0039.0923.869133 – Fax 0039.0923.869226 – E-mail: hq@ccsem.infn.it

Directors of the School:

Ferdinando Bersani, University of Bologna, Italy – E-mail: ferdinando.bersani@unibo.it

Maria Rosaria Scarfi, CNR-IREA, Naples, Italy – E-mail: scarfi.mr@irea.cnr.it

12:10 **LUNCH**

Afternoon

14:00	Impact of protocol parameters on the efficacy of electroporation	Roberta Fusco
14:40	<i>COFFEE BREAK</i>	
15:10	Liver tumor ablation by electroporation: the promising role of computational science in the operating room	Clair Poignard
15:50	AI for Modeling and Treatment Planning	Edward Jacobs
16:30	Electric Pulse Generators and Electrodes for Gene Electrotransfer	Richard Heller

DAY 3 - Sunday, May 4th

Theme: LABWORK AND INTERACTIVE FORUM

Morning

09:00	Treatment Planning Strategies: Clinical Cases	Roberta Fusco
09:40	Hands on: Labwork 1 - Electric Field Calculation on a Basic EP Configuration (by the use of a EM simulator)	Micaela Liberti
10:40	<i>COFFEE BREAK</i>	
11:10	Industry Panel: State of the art, Gaps and Challenges in Technological Development	Sponsors + Speakers + Moderator

12:10 **LUNCH**

Afternoon

14:00	Labwork 2: Electric Field Calculation on a Case Study (incorporating a CT/MRI scan, based on a professional software: IGEA and others?)	Roberta Fusco + other sponsors
15:30	<i>COFFEE BREAK</i>	
16:00	Labwork 3: Electroporation experience on a vegetable tissue with industry sponsors available to bring devices	Igea + other sponsor

DAY 4- Monday, May 5th

Theme: CLINICS

Morning

09:00	Introduce the day: Different Clinical Applications, Main Results, and emerging issues	Gregor Sersa
10:00	Clinical Applications: ECT	Julie Gehl
11:00	<i>COFFEE BREAK</i>	
11:30	Clinical Applications: GET (Gene Therapy)	Richard Heller

12:30 **LUNCH**

Afternoon

14:00	Students Posters and Discussion	
15:00	<i>COFFEE BREAK</i>	
15:30	Clinical Applications: Veterinary oncology	Maja Cemazar
16:00	Clinical Applications: IRE	Fernando Burdio
16:45	Electrochemotherapy: The Insp-ECT (International Network for Sharing practices on ECT) experience	Giulia Bertino
17:25	Medical Experts Panel: Gaps and Challenges in Current Clinical	Moderator: J. Impellizeri ALL Speakers

20:00 **Course Dinner and Best Poster Award**

DAY 5 - Tuesday, May 6th

Theme: FUTURE DIRECTIONS

Morning

09:00	Vascular Malformations	TBC
09:30	Tumour Ablation: Clinical Experiences: Bone metastasis at Vertebre	Lluís M. Mir
10:00	Energy-Based Tumor Ablation and its Interplay with the Adaptive Immune Response	Qi Shao
10:45	<i>COFFEE BREAK</i>	
11:15	Combined treatment of ECT and immunotherapy through IL12 electrogene transfer in Veterinary	Maja Cemazar
11:45	Development of novel genetic vaccine platforms: from the idea to GMP production	Luigi Aurisicchio

12:30 **LUNCH**

Free Afternoon with EXCURSION

DAY 6 - Wednesday, May 7th

Theme: CLOSING REMARKS and SUM-UP

Morning

09:00	State of the Art at 5th World Congress Electroporation in Rome 2024	Francesca Apollonio
09:30	Overview of recently funded Research Programs	All Speakers
10:30	Survey	
11:00	Closing remarks and overview of EP topics at Erice	Bersani&Scarfi