



SCUOLA SUPERIORE
DI FISICA IN MEDICINA
PIERO CALDIROLA

Direttore: Carlo Cavedon

PREDICTIVE MODELS IN EXTERNAL BEAM RADIOTHERAPY

4th Edition

NAPOLI • March 25-27, 2019

Federico II University and National Research Council

Course Directors:

Claudio Fiorino, Tiziana Rancati, Laura Cella



Evento ECM n. 416 - 256232

Crediti assegnati: 17

Professioni: Fisico - Medico Chirurgo
(discipline: Radioterapia, Medicina Nucleare, Radiodiagnostica)

Obiettivo formativo: contenuti tecnico-professionali
(conoscenze e competenze) specifici di ciascuna professione, di ciascuna
specializzazione e di ciascuna attività ultraspecialistica. Malattie rare.



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Objectives

The fourth edition of the Course "Predictive Models in External Beam Radiotherapy" will be held in the amazing city of Napoli (Italy) from 25 to 27 March 2019. This international course is organized by the Italian Association of Medical Physics (AIFM).

The aim of the course is to bring the important news in predictive modelling in Radiotherapy up to date, as well as to overview the state-of-the-art of modelling approaches.

Experts in the field will provide comprehensive contributions on the personalization of treatment, the improvements of knowledge on dose-volume relationships for different organs (including an update of the quantitative data available in the literature).

In addition, new and important issues will be addressed.

Among these, pre-clinical research on animal models, voxel-based approaches to analysis of radiation induced toxicity and treatment failure and survival, the integration of clinical/genetic/imaging parameters in prediction models, the application of predictive models in planning and adaptive radiotherapy.

Finally, needs and modalities for data sharing in outcome modelling will be discussed. Together with advanced topics, the course retains important contributions regarding the basics of radiology applied to radiotherapy and the "traditional" NTCP and TCP models.

The course is aimed at all professionals in the field of radiation oncology who are interested in acquiring a comprehensive overview of the modeling issues, both in terms of updating their knowledge and of methods. This includes radiation oncologists, medical physicists, data scientists and clinical/pre-clinical researchers.

PROGRAMME



MONDAY MARCH, 25 - 2019 • DAY 1

OVERVIEW: BASIC RADIOBIOLOGY AND MODELING

- 08:30 Registration
- 09:30 Welcome from Local Organizer and AIFM.
L. Cella - R. Pacelli, Napoli
- 09:45 **Course AIM/Rationale.** *T. Rancati, Milano*
- 10:00 Why Do We Need Models in Radiotherapy?
G. Gagliardi, Stockholm
- 10:45 *Coffee break*
- 11:15 Radiation Effect at Cell Level: the Tumour. *C. West, Manchester*
- 12:00 Radiation Effect on Tissues: Processes of Damage
in Healthy Tissues. *M. Avanzo, Aviano*
- 12:45 *Light lunch*
- 13:45 TCP Modelling. *L. Strigari, Bologna*
- 14:30 NTCP Modelling. *L. Cella, Napoli*
- 15:15 Pre-clinical Research on Animal Models. *A. Spinelli, Milano*
- 16:00 *Break*
- 16:15 Voxel-based Approaches and Space-based Predictive
Models. *G. Palma, Napoli*
- 17:00 Statistical Modelling vs Machine Learning. *T. Rancati, Milano*

TUESDAY MARCH, 26 - 2019 • DAY 2

- 09:00 Predictive Models: Brain. *R. Pacelli, Napoli*
- 09:45 Predictive Models: Head-and-Neck. *G. Sanguineti, Roma*
- 10:30 *Coffee break*
- 11:00 Predictive Models: Thorax. *L. Cella, Napoli*
- 11:45 Predictive Models: Abdomen. *M. Cattaneo, Milano*
- 12:30 *Light lunch*



13:45 Predictive Models: Pelvis. *C. Fiorino, Milano*

14:30 Hadron Therapy and Predictive Models:
Facts and New Challenges. *M. Schwarz, Trento*

15:15 *Break*

PREDICTING TUMOUR CONTROL AND SURVIVAL

15:30 Dose-effect Relationships for Tumor Control in SBRT.
M. Avanzo, Aviano

16:15 Upcoming Results on Treatment Failure and Survival.
M. Van Herk, Manchester

WEDNESDAY MARCH, 27 - 2019 • DAY 3

CUTTING EDGES AND CHALLENGES

08:45 Image-based Prediction of Normal Tissues Toxicity.
S. Combs, Munich

09:30 Image-based Early Tumor Response and Potential
for Adaptive Therapy. *C. Fiorino, Milano*

10:15 *Coffee break*

10:45 Data Sharing: Needs, Opportunities and Issues.
M. Van Herk, Manchester

11:15 Looking for Use of Radiomics in the Clinics: Feature Stability
and Standardization. *E. Scalco, Milano*

12:00 Models for Tumour Control Including Radiomic Features.
S. Combs, Munich

12:45 *Light lunch*

13:45 Synergy between Radiotherapy and Immunotherapy:
towards Mechanistic Modelling. *L. Strigari, Bologna*

14:30 Automatic Planning & Predictive Models:
Facts and Perspectives. *M. Schwarz, Trento*

15:15 Conclusions/Take-home-message: Looking to the Future:
Challenges and Opportunities. *T. Rancati, Milano*

15:45 ECM and Assessment of Learning.

16:30 End of Course.



ECM Provider



Associazione Italiana di Fisica Medica - AIFM
Piazza della Repubblica 32 - Milano

www.aifm.it

AIFM Scientific Committee

Carlo Cavedon

Coordinatore del CS e direttore della Scuola Caldirola

E. Amato, G. Belli, M. Ciocca, F. Fioroni, M. P. Garancini,
V. Landoni, A. Lascialfari, E. Moretti, O. Rampado, V. Rossetti, P. Russo

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INFORMATION



VENUE

Centro Congressi Federico II
Aula Magna • Via Partenope, 36 - Napoli.

REGISTRATION FEES

- *AIFM non members: € 480,00*
- *AIFM Members: € 240,00*
- *Doctors in training AIFM Members (10 seats available) € 50,00*

All fees 22% VAT included.

The fee includes: admission to all course, coffee break and light lunch.

Registration procedures

The course will be accredited for 80 participants.

The capacity of the main room is 148 seats . More information are available on the website www.fisicamedica.it/formazione.

Applications for registration will be accepted according to the chronological order of arrival.

Any excluded will be included in a waiting list.

The registration will be confirmed after the payment of the fee (wire transfer or credit card are available).

The fee must be paid by **March 11, 2019**.

Cancellation policy

The full amount of the registration fee (except for the processing fee 20 EUR) will be refunded for cancellations received before

March 11, 2019. Wire transfer or credit card costs will be applied.

No refund will be issued for cancellations received after **March 11, 2019**.

All cancellations must be sent in writing via e-mail (segreteria.aifm@symposium.it) to the conference secretariat. Cancellation confirmation will be sent within one week.

ORGANIZING SECRETARIAT

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More information and registration available on:
www.fisicamedica.it