



“HADRON THERAPY: a new frontier for cancer treatment”

September, 19 – 20 2014

Razionale

Hadrontherapy is a specific type of localized radiation therapy, which uses fast hadrons (charged particles made of quarks) to provide a very conformal dose to the target volume in the treatment of many solid tumors. Hadrontherapy may also decrease the risk of adverse effects due to the reduced radiation dose to the normal tissues, especially for those tumors surrounded by radiosensitive organs. In the recent years, stand-alone facilities have been constructed for hadrontherapy, and CNAO, the National Centre for Oncological Hadrontherapy, is the only operating in Italy with protons and carbon ions, and the second in Europe. CNAO is pleased to invite you to attend the new course on “Hadrontherapy: a new frontier for cancer treatment”. The format will offer a deep look into the state of art and evidence based innovation strategies. The programme is focused on the pillars of hadrontherapy, such as physics, radiobiology and clinics, and on innovative aspects of research. All these topics will be faced by international and Italian distinguished speakers, actively engaged in basic and clinical research on hadrontherapy. The Course closes with a visit of CNAO, including the synchrotron and the treatment rooms.

September, 19 2014

8.30 Registration

8.45 Welcome

9.00 Lectio Magistralis “Physics is beautiful and useful” **Ugo Amaldi**

I Session

“Physical and radiobiological aspects”

9.45 Radiobiology (**Marco Durante**)

10.15 “Monte Carlo methods for TPS beam modeling and beyond”

10.45 coffee break

11.00 Protontherapy in clinical practice at PSI” (**Alessandra Bolsi**)

11.30 INFN Research and Development in Hadrontherapy (**Vincenzo Patera**)

12.00 Modeling of Tumor Control Probability for Hadrontherapy (**Michael Beuve**)

12.30 Hadrontherapy at the Physics Department of Pavia (**Alberto Rotondi**)

13.00 Lunch



II Session

“Clinical results”

14.00 Protontherapy at PSI: an overview of 30 years of experience (**Ralf Schneider**)

14.45 Clinical results (**Francesca Valvo**)

15.30 Collaborative clinical trials (**Jacques Balosso - Piero Fossati**)

16.15 Carbon Ion Radiotherapy for the Head and Neck Tumors at NIRS (**Hasegawa**)

17.00 Need for clinical research in hadrontherapy (**Roberto Orecchia**)

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III Session

“New research horizons”

8.30 Registration

9.00 Towards "new" ion species in ion beam therapy (**Andrea Mairani**)

10.00 Online monitoring of ion therapy by means of nuclear reaction products:

- Detection of prompt radiations for hadrontherapy monitoring (**Etienne Testa**)
- Current status, challenge, constraints toward Online-Pet: Summary of experiments performed in France-Hadron: (**Gérard Montarou**)

11.00 Coffe Break

11.15 Modelling of moving organs (**Behzad Shariat**)

12.15 Monitoring of moving organs (**Guido Baroni**)

13.15 Lunch

14.00 Clinical research in pediatric radiation oncology and role of protontherapy (**Lorenza Gandola**)

11.30 “An integrated monitoring system for the assessment of particle therapy treatment accuracy”
(**Giuseppina Bisogni**)

15.00 **Visit of the synchrotron and treatment room** (mini session-CNAO)

17.00 Discussion and test



Scientific Committee: Prof. Roberto Orecchia (CNAO Foundation, Pavia – Italy)

FACULTY

Ugo Amaldi (CERN- Geneve, Switzerland)

Jacques Balosso (ETOILE - Lyon)

Guido Baroni (CNAO Foundation, Pavia – Italy)

Michaël Beuve (Institut de Physique Nucléaire de Lyon - France)

Giuseppina Bisogni (University of Pisa)

Alessandra Bolsi (PSI Villigen – Switzerland)

Marco Durante (GSI Darmstadt – Germany)

Piero Fossati (CNAO Foundation, Pavia – Italy)

Lorenza Gandola (National Cancer Institute – Milan, Italy)

Azusa Hasegawa (Research Center Hospital for charged particle therapy, NIRS Chiba – Japan)

Andrea Mairani (CNAO Foundation, Pavia- Italy)

Gérard Montarou (Laboratoire de Physique Corpusculaire de Clermont-Ferrand - France)

Katia Parodi (Ludwig Maximilian University of Munich)

Vincenzo Patera (University La Sapienza - INFN-Rome – Italy)

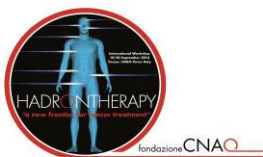
Alberto Rotondi (University of Pavia - Italy)

Behzad Shariat (Laboratoire d'Informatique en Image et Systèmes d'information (LIRIS))

Ralf Schneider (PSI Villigen – Switzerland)

Etienne Testa (Institut de Physique Nucléaire de Lyon – France)

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GENERAL INFORMATION

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