



Workshop on Innovative Delivery Systems in Particle Therapy

23-25 February 2017 *Molecular Biotechnology Center*
Europe/Rome timezone



UNIVERSITÀ
DEGLI STUDI
DI TORINO



Aim of the workshop

Review the present achievements and new developments on DD trying to address the following challenges:

- How to reduce costs and complexity of the current facilities
- Increasing precision and quality of treatments (e.g. dose and range verification)
- Treatment of moving organs
- New accelerator concepts with pulsed beam (ex. Synchro-cyclotron): how to reach same performance with new accelerators types?
- ...

Thursday, 23 February 2017

12:30 - 13:25 Welcome Lunch and Registration

13:25 - 13:30 Welcome 5'

Speaker: Roberto Sacchi (TO)

13:30 - 14:40 Introduction

13:30 **Particle Therapy Beam Delivery: Goals and Challenges** 40'

Speaker: Prof. Jay Flanz (Massachusetts General Hospital - Boston, USA)

14:10 **Motivation and potential of fast dose delivery** 30'

Speaker: Dr. Serena Psoroulas (Paul Scherrer Institute (PSI) - Villigen, Switzerland)

14:40 - 15:40 Current Status and New Challenges

14:40 **Dose delivery challenges at HIT/Marburg** 30'

Speaker: Dr. Stephan Brons (Heidelberg Ion Beam Therapy Center)

15:10 **Development of NIRS fast scanning system** 30'

Speaker: Dr. Takuji Furukawa (National Institute of Radiological Sciences (NIRS) Chiba, Japan)

15:40 - 16:10 Coffee Break

16:10 - 17:40 Current Status and New Challenges

16:10 **Update on proton therapy research at the University of Texas, M. D. Anderson Cancer Center** 40'

Speaker: Dr. Uwe Titt (MD Anderson Cancer Center - Houston, USA)

16:50 **Commissioning of NIRS gantry and KCC-iRock** 30'

Speaker: Dr. Naoya Saotome (National Institute of Radiological Sciences (NIRS) Chiba, Japan)

17:20 **Response function measurements of the integral chambers using fast synchrotron extraction** 20'

Speaker: Dr. Christian Graeff (Gesellschaft für Schwerionenforschung (GSI) - Darmstadt)

17:40 - 18:10 Commercial Systems

17:40 **Dose Delivery System of the Varian ProBeam system with continuous beam** 30'

Speaker: Dr. Holger Göbel (VARIAN Medical Systems Particle Therapy)

20:00 - 22:00 Social Dinner 2h0' (Via saluzzo, 48/d Torino (Ristorante Boja Fauss))

Friday, 24 February 2017

09:00 - 10:30 Dose Verification

09:00 **Verification of high dynamic dose delivery** 30'

Speaker: Dr. Grischa Klimpki (Paul Scherrer Institute (PSI) - Villigen, Switzerland)

09:30 **Results of the INSIDE project** 30'

Speaker: Dr. Francesco Pennazio (Istituto Nazionale di Fisica Nucleare (INFN) - Torino)

10:00 **Online dose calculation using GPUs** 30'

Speaker: Simona Giordanengo (TO)

10:30 - 11:00 Coffee Break

11:00 - 12:00 Organ Motion Strategies

11:00 **Time-resolved strategies for tumor targeting at CNAO** 30'

Speaker: Prof. Guido Baroni (Politecnico di Milano - Fondazione CNAO)

11:30 **4D-optimization and motion-synchronized delivery** 30'

Speaker: Dr. Christian Graeff (GSI)

12:00 - 12:30 New Accelerators for Particle Therapy

12:00 **Advanced Linac Solutions for Hadrontherapy** 30'

Speaker: Dr. Adriano Garonna (TERA foundation)

13:30 - 15:00 Commercial Systems

13:30 **Hitachi Synchrotron based Particle Therapy Technology** 30'

Speaker: Dr. Satoshi Tootake (Hitachi)

14:00 **Proton beam scanning with pulsed beam** 30'

Speaker: Dr. Olivier De Wilde (Ion Beam Applications)

14:30 **PBS with Mevion Hyperscan and Adaptive Aperture** 30'

Speaker: Dr. Andreas Schulte (Mevion Company)

15:00 - 15:30 Current Status and New Challenges

15:00 **Ocular treatments at CNAO** 30'

Speaker: Dr. Mario Ciocca (Fondazione CNAO)

15:30 - 16:00 Coffee Break

16:00 - 16:30 Current Status and New Challenges

16:00 **Commissioning of the Dose Delivery System at MedAustron** 30'

Speaker: Dr. Gregor Kowarik (MedAustron)

16:30 - 18:00 New Accelerators for Particle Therapy

16:30 **Proton Therapy Accelerator Research in the UK** 30'

Speaker: Dr. Ewa Oponowicz (University of Manchester)

17:00 **The Integrated Laser-driven Ion Accelerator System and Ion Beam Radiotherapy** 30'

Speaker: Prof. Paul Bolton (Ludwig Maximilians University - Munich)

17:30 **Use of complementary simulation codes in complex beam optics** 30'

Speaker: Dr. Alexander Gerbershagen (Paul Scherrer Institute (PSI) - Villigen, Switzerland)

18:00 - 18:30 Concluding Remarks

Convener: Roberto Cirio (TO)

Saturday, 25 February 2017

08:15 - 10:15 Bus travel to CNAO ()

Departure at 8:15 from via Nizza 52, in front of the site of the workshop. Please don't be late !

10:30 - 11:00 Coffee break (CNAO Pavia)

11:00 - 12:00 Current Status and New Challenges

Location: CNAO-Pavia (Auditorium)

11:00 **Presentation of CNAO** 30'

Speaker: Dr. Marco Pullia (CNAO)

Introduction

Current status & new challenges

Commercial systems

Dose verification

Organ motion strategies

New accelerators for PT

Practical information

- Toilets are available at the ground floor



Practical information

- Registration at the reception desk
- **Today**
- **Tomorrow from 9:00 to 10:00**

Printing is possible

- At the registration desk
- -or- sending email to
simona.bortot@to.infn.it
liliana.brancato@to.infn.it



Practical information

- Lunches and coffee breaks will be served outside of the conference room

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Practical information

- Access to the network using EDUROAM WiFi



Practical information

- Social dinner **this evening at 8:00 PM**

Boja Fauss restaurant via Saluzzo 48/d



Practical information

- Bus for Pavia will be leaving from the site of the workshop on **Saturday morning at 8:15** and be back to the same place at about 17:30.
- Intermediate stop on the way back at the airport of Torino at about 16:00



