

WORKSHOP “PHYSICS FOR HEALTH IN EUROPE”

2-4 February 2010

Tuesday 2 February

13:00-13:15 Welcome (Rolf Heuer, CERN Director General)

Session 1: Radiobiology in therapy and space science

Chair: Marco Durante (GSI and TU Darmstadt), **Rapporteur:** Bleddyn Jones (Univ. of Oxford)

13.30-14.00 – Keynote: ‘*Radiation Oncology: physics meets biology*’

G. McKenna (Gray Institute for Radiation Oncology & Biology, Oxford)

14.00-14.30 – Keynote: ‘*Radiobiology in heavy ion therapy*’ O. Jaekel (DKFZ, Heidelberg)

14.30-14.45 – ‘*Early events in the formation of genetic damage by heavy ions*’

G. Taucher-Scholz (GSI Darmstadt)

14.45-15.00 – ‘*The space radiation environment*’ P. Nieminen (ESA Noordwijk)

15.00-15.15 – ‘*A proposal for an experimental facility at CERN for research in hadron therapy*’

M. Silari (CERN)

15.15 -15.45 - Coffee break and Poster Walk

15.45-16.00 – ‘*The Monte Carlo Code FLUKA in ion therapy: status and outlook*’

G. Battistoni (INFN Milano)

16.00-16.15 – ‘*Treatment plans in particle therapy*’ M. Krämer (GSI Darmstadt)

16.15-16.30 – ‘*INFN treatment planning system project*’ A. Attili (INFN Torino)

16.30-16.45 – ‘*Synchrotron Radiation Therapy: a promising alternative to treat brain tumors*’

Y. Prezado (ESRF Grenoble)

16.45-17.00 – Discussion

17.00-17.30 Introduction to poster session by chairmen

17.30-19.15 Poster session

19:30 **Workshop dinner in the Globe**

Wednesday 3 February

Session 2: Radioisotopes in diagnostics and therapy

Chair: Jean-François Chatal (ARRONAX), **Rapporteur:** Ulli Köster (ILL)

08.30-09.00 – Keynote: ‘*Radioisotopes in diagnostics and therapy, (pre-)clinical view*’
W.J.G. Oyen, (Radboud University Nijmegen Medical Centre)

09.00-09.10 – ‘*Production of innovative radioisotopes at ARRONAX and ²¹¹At RIT*’
F. Haddad (ARRONAX)

09.10-09.20 – ‘*¹⁴⁹Tb radio-immunotherapy*’ M. Miederer (Universitätsmedizin Mainz)

09.20-09.30 – ‘*Radiation protection aspects related to ¹⁷⁷Lu use in hospitals*’
R. Henkelmann (ITG Garching)

09.30-09.40 – ‘*Preclinical studies with non-standard radioisotopes from ISOLDE-CERN*’
G.J. Beyer (HCUGE/CERN/ITD Dresden)

09.40-10.00 – Discussion on therapy including possible use of ISOLDE isotopes

10.00 -10.30 - Coffee break and Poster Walk

10.30-10.55 – Keynote: ‘*Production of radioisotopes for medical applications*’
N. Ramamoorthy (IAEA Vienna)

10.55-12.00 Panel discussion on ‘*^{99m}Tc supply crisis and alternatives*’ with short contributions followed by interactive discussion:

‘*The future of ^{99m}Tc and alternatives for nuclear medicine*’ D. Lewis (GE Amersham)

‘*Feasibility study of an accelerator-driven production of ⁹⁹Mo*’ L. Maciocco (AAA)

‘*⁶⁸Ge/⁶⁸Ga generator in the clinical environment*’ M. Harfensteller (ITG Garching)

12.00-13.00 Lunch break

Session 3: Prospects in medical imaging

Chair: Alberto del Guerra (INFN, Pisa), **Rapporteur:** Wolfgang Enghardt (TU Dresden)

13.00-13.30 – Keynote: ‘*Radiology meets Physics: the future of MRI*’ D.Le Bihan
(IFR Institut d’Imagerie Neurofonctionelle),

13.30-14.00 – Keynote: ‘*Challenges towards simultaneous PET-MRI*’, S. Vandenberghe (Gent)

14.00-14.15 – ‘*Multimodality approach in the study of tumor angiogenesis: MRI, SRμCT, PET*’
M. Dominietto (ETH & Univ. Zürich)

14.15-14.30 – ‘*ClearPEM Sonic: combined PEM and ultrasound*’ B. Frisch (CERN & TU Vienna)

14.30-14.45 – ‘*LaBr₃ and LYSO Monolithic Crystal coupled to photosensor arrays for TOF PET*’
P. Dendooven (KVI Groningen)

14.45-15.00 – ‘*Optimization of a table-top synchrotron light source for radiological application*’
M. Gambaccini (Univ. Ferrara)

15.00-15.15 – ‘*Clinical and pre-clinical application of spectral X-ray detectors*’
A. Butler (Univ. Canterbury, New Zealand)

15.15-15.30 – ‘*The Magic-5 lung CAD system*’ R. Bellotti (INFN Bari)

15.30-15.45 – Discussion

15.45-16.15 Coffee break and Poster Walk

Session 4: Novel technologies in radiation therapy

Chair: Ugo Amaldi (Univ. Milano and TERA Foundation), **Rapporteur:** Purification Tejedor-Del-Real (European Commission, Brussels)

16.15-16.45 – Keynote: ‘*Novel technologies in radiation therapy*’ K. Peach (John Adams Inst. for Acc. Sci. & PTCRI, Oxford)

16.45-17.15 – Keynote: ‘*Innovative Technology is the Best Way to Improve Radiotherapy for Cancer Patients*’ J.P. Gerard (Centre Antoine Lacassagne, Nice)

17.15-17.30 – ‘*A study on repainting strategies for treating moving targets at PSI*’
S. Zenklusen (PSI Villigen)

17.30-17.45 – ‘*Mitigation of target motion in scanned ion beam therapy*’ Ch. Bert (GSI Darmstadt)

17.45-18.00 – ‘*The TOM5 system for multibeam tomotherapy*’
N. Achterberg (Universitätsklinikum Erlangen)

18.00-18.15 – ‘*Electron cooling application for cancer therapy accelerator facility*’
V. Vostrikov (BINP Novosibirsk)

18.15-18.30 – ‘*A cyclotron-linac complex for carbon ion therapy*’
A. Degiovanni (TERA Foundation)

18.30-18.45 – ‘*A proposal for a low-cost size superconducting multi-use accelerating facility for protons or light ions (LOCMAF)*’ E. Gazis (CERN & NTU Athens)

18.45-19.00 – General Discussion

19.30 Workshop dinner in the Globe

Thursday 4 February

Chairs: Sergio Bertolucci (CERN), Steve Myers (CERN)

08.30-09.00 – Summary talk session 1: B. Jones (Univ. of Oxford)

09.00-09.30 – Summary talk session 2: U. Köster (Institute Laue Langevin, Grenoble)

09.30-10.00 – Summary talk session 3: W. Enghardt (TU Dresden)

10.00-10.30 – Summary talk session 4: P. Tejedor-Del-Real (European Commission, Brussels)

10.30-10.45 – Winning Poster talk

10.45-11.15 Coffee break

11.15-12.15 Final general discussion

12.15-13.15 Keynote closing speakers: D. Townsend (Singapore Bioimaging Consortium)
J. Bourhis (Institute Gustave Roussy, ESTRO)

13.15-13.20 Closing remarks : R. Heuer, CERN Director General