Protons, Ions and Neutrons in Radiation Oncology

International Symposium
6-7 July 2007
Technische Universität München, Arcisstrasse 21
Theresianum, Lecture Hall 0606
Dear colleagues,

Munich is one of the leading sites with regard to clinical application of hadrons and related research (FRM II, Rinecker Proton Center, Excellence Cluster "MAP"). The radiation therapy departments at the University of Essen and the Technical University of Munich (TUM) have a long standing tradition of applying neutrons in the treatment of cancer patients. This form of radiation therapy has taken a back seat to current formidable developments with protons and ions. Nevertheless, they can be used to treat certain tumors in certain stages of disease with good prospect for success. For this reason, neutrons are still being used at the TUM’s new research reactor (FRM II) to primarily treat patients with recurrent tumors (breast cancer and ENT tumors) and also patients with salivary gland tumors, pancoast tumors of the lung and malignant melanomas. Moreover, the interesting field of Boron Neutron Capture Therapy (BNCT) still offers worthwhile perspectives for scientific investigation.

Radiation treatment with protons and ions is becoming more and more important. In the next 10 years, clinical research needs to evaluate the patient benefit and the future role of these expensive treatment methods, which rival high precision photon therapy techniques. It is already evident now that protons are especially useful for radiation treatment of children's cancer.

In addition to current and upcoming clinical studies with hadrons, the Excellence Cluster “Munich Center of Advanced Photonics (MAP)” of the Ludwig Maximilian University and the Technical University of Munich has received a grant from the DFG (Deutsche Forschungsgemeinschaft). The long-term objective of "MAP" is to establish technologies suitable for developing less expensive facilities for treatment with protons and ions. These perspectives are based on modern laser physics and laser technology.

The organizers very much appreciate the financial support given by the sponsors, who made this meeting possible.

We cordially invite you to come to Munich in early summer, where we will discuss various aspects of these new developments.

M. Molls                               W. Sauerwein
Sponsors

This symposium is kindly supported by

IBA Particle Therapy

Züblin Development GmbH

Scanditronix - Wellhöfer

AMGEN GmbH

Eckert & Ziegler BEBIG GmbH

essex pharma GmbH

The Cyclotron Trust London
Friday, 6\textsuperscript{th} July 2007

9:00  Registration

9:30  Welcome

9:45  Hadron therapy -

Objectives of the Symposium

Hannemar Keidel - Vice president
Technical University Munich

Michael Molls
Wolfgang Sauerwein

Session 1: Facilities and beams

Chair: Y. Jongen, F. Nüssl

10:00  Clinical hadron therapy units: A global perspective

Dan Jones

10:20  Discussion

10:30  Production of protons, ions and fast neutrons

Giacomo Cuttone

10:50  Discussion

11:00  Reactor based neutron sources for BNCT

Raymond Moss

11:20  Discussion

11:30  Physical properties of the neutron facility at FRM 2

Peter Kneschaurek

11:50  Discussion

12:00  A report from the DFG-Cluster of Excellence

"The Munich Center for Advanced Photonics (MAP)"

Barbara Röper

12:20  Discussion

12:30  Lunch

Session 2: Radiation Biology

Chair: K.-R. Trott, A. Wittig

14:00  High and Low LET

John Hopewell

14:20  Discussion

14:30  Radiobiology of Protons and Carbon Ions

Gerhard Kraft

14:50  Discussion

15:00  Improvement of high-precision radiation therapy by Biological Treatment Planning

Anca-Ligia Grosu

15:20  Discussion

15:30  Irradiation of single cells with protons and ions

Günther Dollinger

15:50  Discussion

16:00  Coffee break

Session 3: Medical physics in Hadron therapy

Chair: D. Jones, P. Kneschaurek

16:20  Problems of dosimetry in proton and ion treatments

Jens Heufelder

16:40  Discussion

16:50  The contribution of neutrons and photons to the normal tissue dose in proton therapy

Yves Jongen

17:10  Discussion

17:20  BNCT - the complexity of the dose

Finn Stecher-Rasmussen

17:40  Discussion

19:30  Dinner
Saturday, 7th July 2007

Session 4: Clinical treatment I
Chair: W. Hinkelbein, W. Sauerwein

08:30  Neutron therapy at the FRM  Birgit Loeper-Kabasakal
08:45  Discussion
08:55  Current and future role of fast neutrons in RT  Jeffrey Foreman
09:15  Discussion
09:25  Carbon ions in Radiation treatment  Holger Hof, Daniela Schulz-Ertner
09:45  Discussion
09:55  Targeted radiotherapy with BNCT  Wolfgang Sauerwein, Andrea Wittig, Ray Moss
10:15  Discussion

10:25  Coffee break

Session 5: Clinical treatment II
Chair: E. Hug, M. Stuschke

10:50  Proton treatment of ocular tumors  Andrea Wittig, Pierre Chauvel, Norbert Bornfeld, Wolfgang Sauerwein
11:10  Discussion
11:20  Proton therapy and IMRT in Head and Neck Cancer  Paul Busse
11:40  Discussion
11:50  Proton therapy in pediatric oncology  Eugen Hug
12:10  Discussion
12:30  Hadrons: a statement of DEGRO  Norman Willich
12:40  Discussion
12:50  Lunch

Session 6: Financial aspects
Chair: P. Busse, R. Moss

14:00  Hadron Therapy: aspects of healthcare finances  Klaus-Peter Thiele
14:20  Discussion
14:30  Financing big facilities for radiation oncology  Bernard Dandoy
14:50  Discussion
15:00  Cost-effective design and operation of particle therapy facilities  Karen Treuter
15:20  Discussion
15:30  Coffee break

Session 7: Status reports from German proton centers
Chair: M. Molls, N. Willich

15:55  Protons and Ions: Heidelberg/ Darmstadt  Jürgen Debus
16:15  Protons: Hahn-Meitner Institute/ Berlin  Lutz Moser, Wolfgang Hinkelbein
16:35  Protons: Rinecker Proton Therapy Center/ Munich  Manfred Herbst
16:55  Proton treatment: an academic task?/ Essen  Martin Stuschke
17:15  Discussion
17:35  Concluding Remarks  Michael Molls
Poster exhibition

D. T. L. Jones: The ICRU and its current activities

Ludwig Bogner: MC based inverse treatment planning including biological dose painting with photons and protons

V. Nievaart, J. Morand, A. Wittig, R. Moss, A. Roca, G. Daquino, R. Hentschel, S. Levegrün, J. Rassow, W. Sauerwein: Inverse treatment planning for BNCT with multiple beams

J. Morand, R. Hentschel, S. Hachem, A. Wittig, B. Wortmann, W. Sauerwein: Monte Carlo Simulation of the fast neutron beam in Essen

J. Gueulette, J. P. Slabbert, B. M. De Coster and A. Wambersie: Variation of the proton RBE in the SOBP shown with in-vivo systems


D. T. L. Jones: iThemba LABS: the only centre for neutron and proton therapy

D. J. Grocott: Developing virtual communities for those involved in protons, ions and neutrons in Radiation Oncology


M. Gruia, R. Anghel, V. Negoita, M. Vasilescu, V. Lungu, V. Fugaru, I. Gruia: Mechanism of apoptosis induced after BNCT treatment in experimental hepatoma model


S. Custodero: Thermal neutron flux for NCT applications using a fusion based compact Neutron Generator

R. Hentschel, W. Sauerwein: Accelerator based Boron Neutron Capture Therapy
Protons, Ions and Neutrons in Radiation Oncology
International Symposium
Munich (Germany) – July 06 to 07, 2007

Please complete the registration form and send it by email, fax or regular mail to:

Klinik und Poliklinik für Strahlentherapie und Radiologische Onkologie
Klinikum rechts der Isar der Technischen Universität München
Frau N. Methfessel
Ismaninger Str. 22
81675 München
Phone: +49 89 4140 4502
Fax: +49 89 4140 4477
e-mail: klinik-fuer-strahlentherapie@lrz.tum.de

(last name/ first name)

Institution/ Company

Position

Address

City Code/ City/ Country

Phone/ Fax

Email

Submission of a poster: yes/ no (poster format: height 120 cm, width 100 cm)

Title of the poster

Date/ Signature
Organization
   Essen: G. Franz, Prof. Dr. W. Sauerwein, Dr. A. Wittig
   Munich: N. Methfessel, Prof. Dr. M. Molls, Dr. R. Thamm

Registration
   Klinik für Strahlentherapie und Radiologische Onkologie
   Klinikum rechts der Isar der TU München
   Frau Nicole Methfessel
   Ismaninger Str. 22
   81675 München
   Phone: 089/ 4140 4502
   Fax: 089/ 4140 4477
   Email: klinik-fuer-strahlentherapie@lrz.tu-muenchen.de

The symposium will be accredited with 16 CME points

The attendance is free of charge

To make hotel reservation please contact
   Tourismusamt München
   Sendlinger Str. 1
   80331 München
   Phone: +49 89 233 96 555
   Fax: +49 89 2333 30 233
   Email: hotelservice@muenchen.de
   www.muenchen.de/Rathaus/raw/Tourismusamt/hotel/119116/hotel_zimmervermittlung.html
<table>
<thead>
<tr>
<th>Speakers and chairmen:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Prof. Dr. Norbert Bornfeld</td>
<td>Essen</td>
</tr>
<tr>
<td>Prof. Dr. Paul Busse</td>
<td>Boston</td>
</tr>
<tr>
<td>Dr. Pierre Chauvel</td>
<td>Nice</td>
</tr>
<tr>
<td>Prof. Giacomo Cuttone</td>
<td>Catania</td>
</tr>
<tr>
<td>Bernard Dandoy</td>
<td>Louvain-la-Neuve</td>
</tr>
<tr>
<td>Prof. Dr. Dr. rer. nat Jürgen Debus</td>
<td>Heidelberg</td>
</tr>
<tr>
<td>Prof. Dr. rer. nat, Günther Dollinger</td>
<td>Munich</td>
</tr>
<tr>
<td>Prof. Dr. Jeffrey Foreman</td>
<td>Detroit</td>
</tr>
<tr>
<td>PD Dr. Anca-Ligia Grosu</td>
<td>Munich</td>
</tr>
<tr>
<td>Prof. Dr. Manfred Herbst</td>
<td>Munich</td>
</tr>
<tr>
<td>Dr. Jens Heufelder</td>
<td>Villigen</td>
</tr>
<tr>
<td>Prof. Dr. Wolfgang Hinkelbein</td>
<td>Heidelberg</td>
</tr>
<tr>
<td>Dr. Holger Hof</td>
<td>Heidelberg</td>
</tr>
<tr>
<td>Prof. Dr. John Hopewell</td>
<td>Oxford</td>
</tr>
<tr>
<td>Prof. Dr. Eugen Hug</td>
<td>Villigen</td>
</tr>
<tr>
<td>Prof. Dr. Dan Jones</td>
<td>Kapstadt</td>
</tr>
<tr>
<td>Prof. Dr. Yves Jongen</td>
<td>Louvain-la-Neuve</td>
</tr>
<tr>
<td>Dr. phil. Hannemor Keidel</td>
<td>Munich</td>
</tr>
<tr>
<td>Prof. Dr. Peter Kneschaurek</td>
<td>Munich</td>
</tr>
<tr>
<td>Prof. Dr. Gerhard Kraft</td>
<td>Darmstadt</td>
</tr>
<tr>
<td>Dr. Birgit Loeper-Kabasakal</td>
<td>Munich</td>
</tr>
<tr>
<td>Prof. Dr. Michael Molls</td>
<td>Munich</td>
</tr>
<tr>
<td>Dr. Lutz Moser</td>
<td>Berlin</td>
</tr>
<tr>
<td>Dr. Raymond Moss</td>
<td>Petten</td>
</tr>
<tr>
<td>Prof. Dr. Fridtjof Nüsslin</td>
<td>Munich</td>
</tr>
<tr>
<td>Dr. Barbara Röper</td>
<td>Munich</td>
</tr>
<tr>
<td>Prof. Dr. Wolfgang Sauerwein</td>
<td>Essen</td>
</tr>
<tr>
<td>Finn Stecher-Rasmussen</td>
<td>Alkmaar</td>
</tr>
<tr>
<td>Prof. Dr. Martin Stuschke</td>
<td>Essen</td>
</tr>
<tr>
<td>Dr. Klaus-Peter Thiele</td>
<td>Düsseldorf</td>
</tr>
<tr>
<td>Dr. Karen Treuter</td>
<td>Köln</td>
</tr>
<tr>
<td>Prof. Dr. Norman Willich</td>
<td>Münster</td>
</tr>
<tr>
<td>Dr. Andrea Wittig</td>
<td>Essen</td>
</tr>
</tbody>
</table>