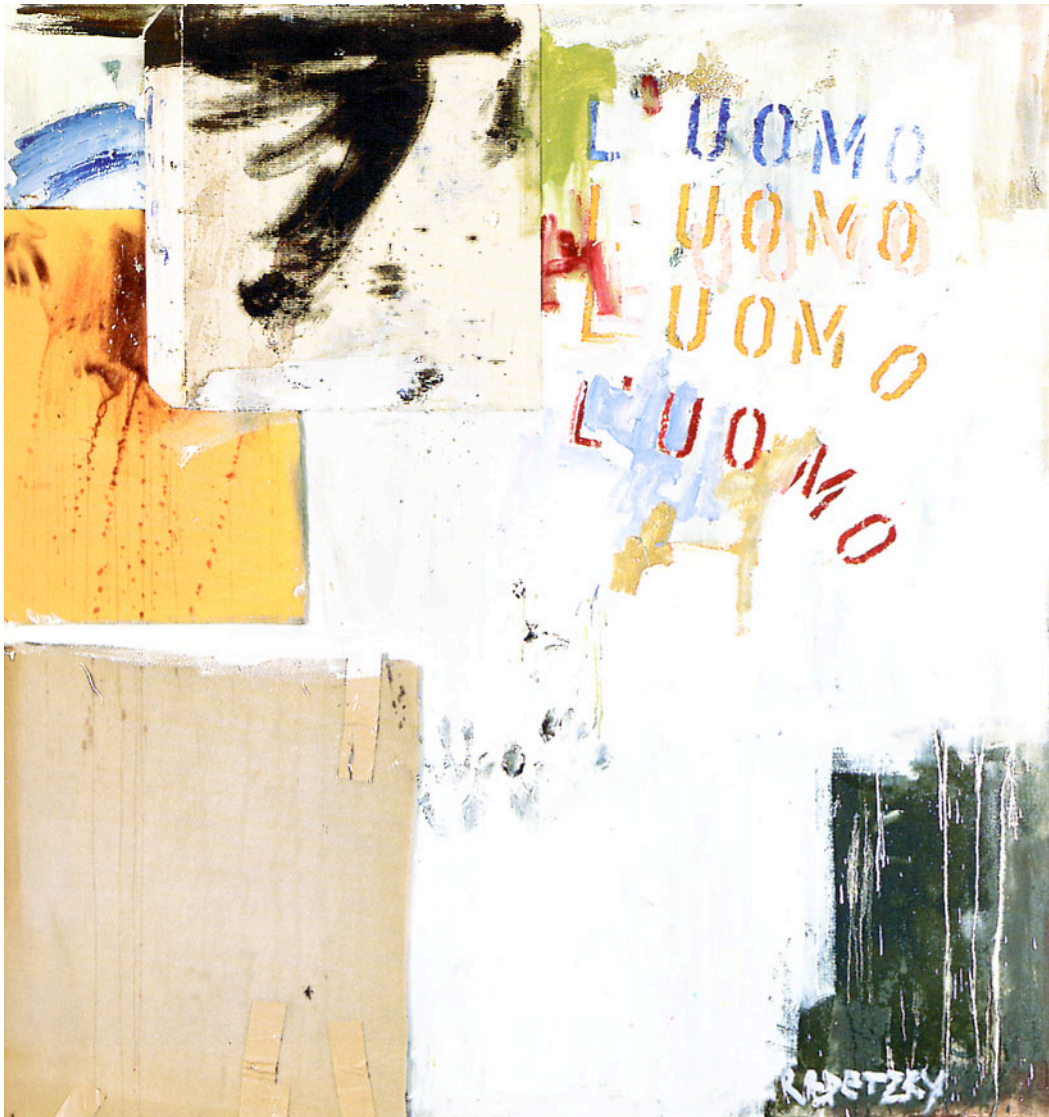


Protons, Ions and Neutrons in Radiation Oncology

International Symposium
6-7 July 2007

Technische Universität München, Arcisstrasse 21
Theresianum, Lecture Hall 0606



Cäsar W. Radetzky **L'UOMO**. 1980

Combine Painting 170 x 160 cm
<http://www.caesar-w-radetzky.de>



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

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The Cyclotron Trust London



Friday, 6th July 2007

9:00	Registration	
9:30	Welcome	<i>Hannemor Keidel - Vice president Technical University Munich</i>
9:45	Hadron therapy - Objectives of the Symposium	<i>Michael Molls Wolfgang Sauerwein</i>
Session 1: Facilities and beams		Chair: Y. Jongen, F. Nüsslin
10:00	Clinical hadron therapy units: A global perspective	<i>Dan Jones</i>
10:20	Discussion	
10:30	Production of protons, ions and fast neutrons	<i>Giacomo Cuttone</i>
10:50	Discussion	
11:00	Reactor based neutron sources for BNCT	<i>Raymond Moss</i>
11:20	Discussion	
11:30	Physical properties of the neutron facility at FRM 2	<i>Peter Kneschaurek</i>
11:50	Discussion	
12:00	A report from the DFG-Cluster of Excellence "The Munich Center for Advanced Photonics (MAP)"	<i>Barbara Röper</i>
12:20	Discussion	
12:30	Lunch	
Session 2: Radiation Biology		Chair: K.-R. Trott, A. Wittig
14:00	High and Low LET	<i>John Hopewell</i>
14:20	Discussion	
14:30	Radiobiology of Protons and Carbon Ions	<i>Gerhard Kraft</i>
14:50	Discussion	
15:00	Improvement of high-precision radiation therapy by Biological Treatment Planning	<i>Anca-Ligia Grosu</i>
15:20	Discussion	
15:30	Irradiation of single cells with protons and ions	<i>Günther Dollinger</i>
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	<i>Jens Heufelder</i>
16:40	Discussion	
16:50	The contribution of neutrons and photons to the normal tissue dose in proton therapy	<i>Yves Jongen</i>
17:10	Discussion	
17:20	BNCT - the complexity of the dose	<i>Finn Stecher-Rasmussen</i>
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
08:45 Discussion

Birgit Loeper-Kabasakal

08:55 Current and future role of fast neutrons in RT
09:15 Discussion

Jeffrey Foreman

09:25 Carbon ions in Radiation treatment
09:45 Discussion

Holger Hof, Daniela Schulz-Ertner

09:55 Targeted radiotherapy with BNCT
10:15 Discussion

*Wolfgang Sauerwein,
Andrea Wittig, Ray Moss*

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
12:10 Discussion

Eugen Hug

12:30 Hadrons: a statement of DEGRO
12:40 Discussion

Norman Willich

12:50 Lunch

Session 6: Financial aspects

Chair: P. Busse, R. Moss

14:00 Hadron Therapy: aspects of healthcare finances
14:20 Discussion

Klaus-Peter Thiele

14:30 Financing big facilities for radiation oncology
14:50 Discussion

Bernard Dandoy

15:00 Cost-effective design and operation of
particle therapy facilities
15:20 Discussion

Karen Treuter

15:30 Coffee break

Session 7: Status reports from German proton centers

Chair: M. Molls, N. Willich

15:55 Protons and Ions: Heidelberg/ Darmstadt
16:15 Protons: Hahn-Meitner Institute/ Berlin
16:35 Protons: Rinecker Proton Therapy Center/ Munich
16:55 Proton treatment: an academic task?/ Essen
17:15 Discussion

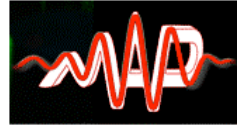
*Jürgen Debus
Lutz Moser, Wolfgang Hinkelbein
Manfred Herbst
Martin Stuschke*

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**
- P. Olko, G. Cuttone, Ł.Czopyk, T. Kajdrowicz, M. Kłosowski, J. Lesiak, T. Nowak, J. Swakoń, B. Romanowska – Dixon , F. Di Rosa, U. Sroka, M.P.R.Waligórski:* **Novel thermoluminescence foils (2-D) for QA of proton eye radiotherapy beams**
- A. Roca, S. Nievaart, G.G. Daquino, R.L. Moss, N.V. Zamfir, R. Schmidt, F. Stecher-Rasmussen, Y.-H. Liu, J. Rassow, W. Sauerwein:* **The use of ionisation chambers in a mixed neutron-photon beam**
- 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**
- A. Wittig, R. Moss, Becquet, P.Paquis, J. Heimans, K. Haseslsberger, C.Loquai, G. Kaiser, J. Rassow, F. Stecher-Rasmussen, V.Nievaart, S. Bührmann, P. Bet, H. Arlinghaus, A.Wojcik, L.Collette, W. Sauerwein:* **A strategy to develop Boron Neutron Capture Therapy (BNCT) towards a clinical modality**
- W. Sauerwein, R. Moss, A. Wojcik, S. Altieri, G. Hampel, A. Wittig, V. Nievaart, L. Collette, P. Mauri, R. Huiskamp, J. Michel, G. Daquino, G. Gerken, N. Bornfeld, M. Stuschke, M. Malago:* **BNCT and autotransplantation: a curative approach for disseminated, non-resectable Liver Metastases?**
- 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**
- R. Moss , W. Sauerwein, F. Stecher-Rasmussen, L. Pott, J. Rassow, A. Wittig:* **The Boron Neutron Capture Therapy (BNCT) Facility at the High Flux Reactor (HFR) of the European Commission**
- Y. Jongen, J. Ahlback, E. Poncelet, R. Galloway, F. Stichelbaut, A Cambriani, E. Forton:* **An epithermal neutron source for BNCT**
- 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 :

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Date/ Signature

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

Registration

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The symposium will be accredited with 16 CME points

The attendance is free of charge

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