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## **Minutes of PTCOG XI meeting at PSI, Switzerland September 18<sup>th</sup> – 20<sup>th</sup>, 1989 and Dates of Future Meetings**

A very full and successful meeting was held at the Paul Scherrer Institute (previously SIN) at Villigen, Switzerland – in conjunction with the European Organization of Research and Treatment of Cancer (EORTC) Heavy Particle Therapy Group, and the European Clinical Neutron Dosimetry Group (ECNEU). There were 116 registrants. The meeting offered an opportunity for a broad international exchange of views and information, and for some cross-fertilization between neutron and charged particle investigators.

A copy of the meeting agenda is attached. Since it is planned that a book of the proceedings will be published, details of the formal presentations will not be given here. (Ordering information for the proceedings, for PTCOG members who did not attend, will be circulated.) In general, it is fair to say that the meeting gave evidence of a vigorous and increasing level of interest and activity in proton beam therapy.

Two issues surfaced during the meeting: one having to do with the radiobiological effectiveness (RBE) of proton beams, the other having to do with clinical protocols. So far as RBE is concerned, it became clear that there is a divergence of opinion and, more importantly, of practice concerning the RBE being used in clinical trials. The MGH/Harvard group uses a value of 1.10 (all values relative to Co60 radiation) – which they consider, if anything, to be on the low side of the experimental data. The Japanese at KEK in Tsukuba, and the Soviets at ITEP in Moscow both use a value of 1.00 based on their analyses of the data. It is clear that there is a need to review this matter. On the other hand, it will become difficult to interpret the clinical data as they accumulate if an inconsistent set of RBE values are used; on the other hand, there may well be a need to perform international cross-calibrations of proton beams on both a biological and physical basis to resolve the issue.

So far as clinical protocols are concerned, two meetings were held to present outlines of some of the existing and proposed protocols, and to discuss how to proceed in order to best use the talent and interest within PTCOG: to generate co-operation in the design and conduct of clinical trials, to improve proposed protocols, and to generate new protocols.

It was decided that PTCOG will form a new protocol sub-committee to review and propose protocols. It is likely that there will be a large degree of overlap with the existing clinical sub-committee. However, because the review process will involve the mailing (and, we trust, reading) of voluminous material in at least some instances, the protocol committee should be limited to those (primarily clinicians) with a serious interest in reading and commenting on protocols, and/or in proposing new initiatives. With regard to the latter, a “short form” will be developed by George Goodman, which will be helpful to those wishing to propose new clinical areas for exploration. A form is attached for any members of PTCOG who would like to be included on the protocol sub-committee – it should be filled out and returned to your secretary (the address is on the letterhead) promptly.

## Future Meetings

The date and location has been set of the next meeting and the approximate time and location for several following meetings. The next meeting will be at Loma Linda, and should coincide approximately wit the commissioning of the new proton medical facility there. It has been suggested that we hold a workshop on gantry design (including beam scanning issues) in conjunction with the next meeting. This will be held on the Monday, with the main meeting being held on the Tuesday and Wednesday. (The workshop is intended to be a working meeting of those with a direct interest in developing beam scanning systems. A report of the workshop's activities will be tendered to the main meeting on the following day.)

If anyone knows of any impediment(s) to the proposed dates for the next meeting(s), please communicate it (them) immediately to the secretary so that corrective measures can be taken. Absent conflicts, the next meetings will be held as follows:

Location	Date	
Loma Linda	Monday, May 7 <sup>th</sup> , 1990	workshop on gantry/beam delivery design
Loma Linda	May 8 <sup>th</sup> – May 9 <sup>th</sup> 1990	main PTCOG meeting
Boston	week of October 29 <sup>th</sup> 1990	
? Fermilab	spring 1991	
? LBL, Berkeley	fall 1991	
? Europe	spring 1992	

A formal meeting announcement, with a registration form, will be sent out approximately 3 months before the meeting. However, if anyone needs to contact the arrangements committee (particularly our overseas members who may need to make early arrangements) they can contact:

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## **PROGRAM**

**Monday September 18, 1989, Morning**

0900           **REGISTRATION**

0940           **WELCOME**

J.P. Blaser, Director PSI

J. Slater, Chairman PTCOG

M. Wannemacher, Chairman EORTC Heavy Particle Therapy Group

S. Vynckier, Chairman ECNEU

**PHYSICS SESSION**

**Chairman: D. Miller**

**Beam delivery systems, treatment planning and comparisons**

1000	E. Pedroni et al.	The 200 MeV Proton Therapy Project at PSI
1015	R. Bacher et al.	Experimental Setup and First Result for Dosimetry for Fast Dynamic Treatment with Protons
1030	W.T. Chu et al.	Toward Perfecting Dynamic Beam Delivery Methods
1045	B. Gottschalk et al.	Upstream Scattering/Modulation in Proton Therapy Beams
1100	<b>DISCUSSION</b>	
1115	<b>COFFEE – POSTER VIEWING</b>	
1145	M. Phillips et al.	Effects of Target Size on the Comparison of Charged Particle and Photon Dose Distributions
1200	A. Coray et al.	Dose Distribution Intercomparison for Specific Cases for Proton, Pion, and Photon Irradiations
1215	J.T. Lyman	Evaluation and Optimization of Treatment Plans Using a Biological Probabilistic Objective Function
1230	H. Tatsuzaki et al.	Factor Analysis of Higher Doses to Skull Base Tumors with Proton Beam Therapy
1245	<b>DISCUSSION</b>	
1315 – 1430	<b>LUNCH AT PSI CANTEEN OASE</b>	

**Monday September 18, 1989 Afternoon**

**PHYSICS SESSION cont.**

**Chairman: M. Goitein**

**Treatment planning and comparisons, dosimetry**

1430	K. Nakagawa et al.	Calculation of Complication Probability of Pion Treatment at PSI Using Dose-Volume Histograms
1445	K.H. Hover et al.	A Comparison of Calculated and Experimental Dose Distributions for Non-routinely Used Neutron Techniques
1500	R. Engenhart et al.	Experience with the Computer Controlled Weighted Moving Beam Therapy (WMBT) in Routine Clinical Use
1515	H. Tsujii et al.	Real Time Position Verification for Proton Therapy at Tsukuba
1530	L. Verhey et al.	Precise Repositioning of Patients for Proton Therapy
1545		DISCUSSION
1615		COFFEE – POSTER VIEWING
1650	A. Wambersie	Volume and Dose Specification in External Beam Therapy for Different Radiation Qualities. Present Situation and Future Trends.
1710	S. Vynckier et al.	Proposal for a European Code of Practice for Clinical Proton Dosimetry
1725	A. Kacperk et al.	Development of Faraday Cup for Clatterbridge Proton Dosimetry
1740		DISCUSSION
1815		TRANSFER TO HOTEL BY BUSES
1815 –1900		TOUR OF FACILITY  PIONTHERAPY, OPTIS, 250 MeV PROTON SCANNING EXPERIMENT
1915		TRANSFER TO HOTEL BY BUSES

Tuesday September 19, 1989, Morning

SESSION ON RADIOBIOLOGY AND MEDICAL FACILITIES

Chairman: H. D. Suit

0900	B. Larsson et al.	On the Reconstruction of Single Tracks Through Single Cells
0915	R. Schmidt et al.	Biological Treatment Planning for Different Types of Irradiations
0930		DISCUSSION
0940	J. Slater	Hospital-based Proton Therapy System Progress Report
0955	S. Fukumoto et al.	Tsukuba Medical Proton Synchrotron
1010	G. Gademann et al.	Clinical Programs of the Radiotherapy Project with Heavy Ions Heidelberg-Darmstadt
1025	D.T.L. Jones et al.	Particle Therapy at the Natl. Accelerator Centre: Progress & Plans
		COFFEE – POSTER VIEWING
1110	Russian contrib.	to be announced
1125	J.M. Sisterson et al.	Proton Beam Therapy: Reliability of the Synchrotron at the Harvard Cyclotron Laboratory over the 10 Year Period 1979-1988
		DISCUSSION
		Session for reports of other projects
1300 – 1415		LUNCH AT PSI CANTEEN OASE

**Tuesday September 19, 1989, Afternoon**

	CLINICAL SESSION	Chairman: R. Greiner
1415	K. Karasawa et al.	Clinical Feasibility of Photon Conformation Therapy with Multi Leaf Collimator in Brain Tumors [Japanese experience]
1430	M. Urie et al.	Tumor Control and Heterogeneity of Dose'
1445	L. Bercher et al.	Life Expectancy and Functional Results after Proton Beam Irradiation for Uveal Melanoma
1500	H. Tsujii et al.	High Energy Proton Therapy at Tsukuba
1530		DISCUSSION
1550		COFFEE – POSTER VIEWING

**PARALLEL SESSIONS      Auditorium and Laborgebaude E26+E28**

**CHARGED PARTICLE GROUP Auditorium**

1620 – 1720                      Proposals for Clinical Protocols  
Chairman: J. Slater

**NEUTRON GROUP              Laborgebaude E26+E28**

1620 – 1720                      Status Reports of the Facilities  
Chairman: M. Wannemacher

**PLENARY SESSION              SUMMARY, Auditorium**

**CHARGED PARTICLES**

J. Slater

**NEUTRONS**

A. Wambersie

1815  
2000  
2300

DEPARTURE FOR SOCIAL PROGRAM  
CONFERENCE DINNER, Schloss Habsburg  
TRANSFER TO THE HOTEL MOVENPICK  
AND TO THE RAILWAY STATION OF BRUGG

**Wednesday September 20, 1989, Morning**

**PARALLEL SESSIONS      at Hotel Movenpick and PSI**

**CHARGED PARTICLE GROUP at Hotel Movenpick, Regensdorf**

0800 – 1000                      Clinical Protocols cont.  
PTCOG Business Meeting

**NEUTRON GROUP              at PSI, Laborgebaude, E26+E28**

0900              J. Rassow et al.              Influence of Bone, Lung and Air Inhomogeneities on Absorbed  
Dose Distribution in Soft Tissue Material for Therapy with  
d(14)+Be Neutrons

0915              P. Pihet et al.              Intercomparison Factor for Neutron Therapy Beams from  
Microdosimetric Investigation at European Facilities

0930              J. Hough et al              Radiation Quality in the Penumbra Region of Neutron Therapy  
Beams

0930              H.J. Brede et al.              Determination of  $k_{ij}$  Values of Argon Filled Magnesium  
Ionization Chambers

0945              J.F. Crawford              The Potential of Cyclotron-Based Neutron Capture Therapy

**COFFEE**

**NEUTRON GROUP**

**at PSI, Laborgebaude E26+E28**

Clinical session

Chairman: A. Wambersie

- 1115 R. Schwarz et al. Status Report of Fast Neutron Therapy at the Department of Radiotherapy, University Hospital Hamburg-Eppendorf (FRG) and Results of Fast Neutron Therapy in Soft Tissue Sarcoma
- 1130 A. Krull et al. Results of Fast Neutron Therapy in Adenoidcystic Carcinoma of the Head and Neck
- 1145 A. Krull et al. Radiotherapy in Soft Tissue Sarcomas of the Head and Neck
- 1200 H.D. Franke Position of the Treatment of Prostate Cancer (Stage C) with Fast Neutrons
- 1215 V. Budach et al. Radiosensitivity Pattern of 10 Xenografted Soft Tissue Sarcomas to Photons and D(14)+Be neutrons
- 1230 S. Dinges et al. Neutron and Neutron-boost Therapy of Spinal Cord Gliomas and Soft Tissue Sarcomas: A Status Report
- 1245 E. El-Akkad et al. An Update on the Saudi Neutron Therapy Program at the King Faisal Specialist Hospital and Research Centre
- 1315 – 1430 LUNCH AT PSI CANTEEN OASE

Wednesday September 20 1989, Afternoon

**CLINICAL PROTOCOLS**

EORTC Heavy Particle Therapy Group Business Meeting  
ECNEU Business Meeting

- 1615 **END OF THE WORKSHOP**
- 1630 Departure of bus to Hotel Movenpick and to the railway station at Brugg