

Discussion Seminar



Radiation Quality Assessment in Hadrontherapy

INFN, Laboratori Nazionali di Legnaro

30-31 October 2006

Organizer: Paolo Colautti - E-mail: Paolo.Colautti@lnl.infn.it

Editors: Paolo Colautti, Davide Moro

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Legnaro, conference room Claudio Villi, 30-31 October 2006



Therapeutic properties of hadrons are exploited in radiation therapy to treat tumours and other pathologies. Hadrons give rise to mixed radiation fields, the components of which have different biological effects. Microdosimetric measurements of the radiation field can be processed to assess the average biological effectiveness of the field.

The main task of the seminar is to discuss the following 2 items

1. Microdosimetric measurements, heuristic limits and prospects.
2. Microdosimetric measurements, technical limits and prospects.

The discussion will be introduced by some lectures. All discussion seminar participants, who want to show some slides (possibly no more than three), can show them during the discussion times. In the following, the proposed seminar schedule.



**How to apply for financial support to an experiment
by Legnaro Laboratories** ▶

Enrico Fioretto

Laboratori Nazionali Legnaro-INFN - Italy

Introduction ▶

Paolo Colautti

Laboratori Nazionali Legnaro – INFN - Italy

Radiobiological data and physical radiation quality ▶

Mauro Belli

Istituto Superiore Sanità – Italy

**Radiobiological characterization of high-LET radiation beams and
questions related to their clinical application** ▶

John Gueulette

Université catholique de Louvain - Belgium

Mechanistic and phenomenological models of radiobiological damage ▶

Andrea Ottolenghi

Pavia University- Italy

Nanodosimetry, the Visionary Tool of Future Applied Radiation Physics ▶

Bernd Grosswendt

Physikalisch-Technische Bundesanstalt – Germany

**Quality concept: the multidisciplinary approach of the European
network for light ion hadron therapy, ENLIGHT** ▶

Giulio Magrin

TERA Foundation - CERN

**Evaluation of the effective radiobiological dose of carbon ion
beams with the LEM model** ▶

Andrea Attili

Torino University and INFN – Italy

Radiation Quality Assessment in Hadrontherapy

Microdosimetric measurements, technical limits and prospects

**Tissue-equivalent proportional counters (TEPCs) in hadrontherapy:
possibilities and limits**



Graeme Taylor

National Physical Laboratories - UK

Radiation quality, variance-covariance possibilities and limits



Lennart Lindborg

Swedish Radiation Protection Institute – Sweden

Mini TEPCs for measuring radiation quality of hadronic beams



Davide Moro

Laboratori Nazionali Legnaro-INFN - Italy

Microdosimetric Distributions for a Mini-TEPC Due to Photon Radiation



Elisabetta Gargioni

Physikalisch-Technische Bundesanstalt – Germany

A silicon microdosimeter for high-LET radiation



Andrea Pola

Politecnico di Milano - Italy

Radiation quality measurements in BNCT



Juan Esposito

Laboratori Nazionali Legnaro – INFN - Italy

**RBE of 7 NCT beams for intestinal crypt regeneration in mice:
how to interpret the dispersion of the results ?**



John Gueulette

Université catholique de Louvain - Belgium