



**UNIVERSITÉ
DE GENÈVE**

FACULTÉ DES SCIENCES
Département de physique
nucléaire et corpusculaire

SÉMINAIRE DE PHYSIQUE CORPUSCULAIRE

SUJET: Particle accelerators in tumour therapy

PAR: Dr Ugo Amaldi
Technische Universität München *and* TERA Foundation

DATE: Mercredi 16 octobre 2013, 11h15

LIEU: Science III, Auditoire 1S081
Boulevard d'Yvoy, 1211 Genève 4

RÉSUMÉ:

'Hadrontherapy', or 'particle therapy', is a collective word which covers all cancer therapy modalities which irradiate patients with beams of hadrons.

The most used hadrons are protons and carbon ions. Protontherapy is developing very rapidly: more than 100'000 patients have been treated and eight companies offer turn-key centres. Carbon ions, used for about 8000 patients, have a larger radiobiological effectiveness and, being a qualitatively different radiation, require still radiobiological and, in particular, clinical studies to define the best tumour targets.

After a review of the rationale for hadrontherapy and of the accelerators used in protontherapy, the European centres for carbon ion therapy will be discussed. Finally the two challenges facing the physicists and the engineers developing the accelerators for hadrontherapy will be described: the construction of 'single-room' facilities for protons and of multi-room facilities, not based on synchrotrons, for carbon ions.

INFORMATION : <http://dpnc.unige.ch/seminaire/annonce.html>

ORGANISATEURS: Prof. Teresa.Montaruli@unige.ch, Prof. Giuseppe.Iacobucci@unige.ch