FAKULTÄT für PHYSIK
LUDWIG-MAXIMILIANS-UNIVERSITÄT
MÜNCHEN/GARCHING

PHYSIK-DEPARTMENT
TECHNISCHE UNIVERSITÄT MÜNCHEN
MÜNCHEN/GARCHING

MLL-KOLLOQUIUM

Donnerstag, 15.05.2014, 16^{15} Uhr

Seminarraum 127, TUM, Physik II, Erdgeschoss/Nord
Treffen zum gemeinsamen Kaffee 16 Uhr

Dr. Peter Dendooven

(KVI - CART, Groningen, Netherlands)

Medical physics research at the KVI-Center for Advanced Radiation Technology

In cancer treatment, proton beam radiotherapy exploits the highly localized dose deposition of protons to minimize the dose delivered to healthy tissue surrounding a tumor. As a result, collateral damage to healthy tissue is less compared to photon radiotherapy: complications are reduced and the patient's quality of life after treatment is improved. However, the more precise irradiation possible with protons means an irradiation with protons is less forgiving with respect to dose delivery errors such as proton range uncertainties, patient mispositioning and anatomical changes in the patient during the course of treatment. At KVI-Center for Advanced Radiation Technology of the University of Groningen, we investigate several issues aiming at improved proton radiotherapy. Better knowledge of the patient in terms of proton stopping power by making use of dual-energy CT images and proton radiography is investigated. The clinical implementation of in-vivo dose delivery verification by imaging secondary radiation produced by the proton beam as part of quality assurance is being studied. Also, a better primary proton dose standard in terms of heat deposit in water is investigated. An overview of our proton-therapy related research, with some emphasis on in-vivo dose delivery verification will be presented. The status of the UMC Groningen Proton Therapy Centre will be briefly discussed.

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