1st ESTRO Physics workshop: Science in development

17th-18th November 2017, Glasgow (Scottish Event Campus, Exhibition Way)

Micro- and nanodosimetry for radiotherapy

Chairs: Brigitte Reniers (BE) and Hugo Palmans (AT, UK)

Day 1	**Friday 17 November**
08:30	Registration
Room: Lomond 10:00- 10:15	Introduction of the meeting. *Nuria Jornet (ES), Physics Committee Chair* Welcome remarks from Glasgow, *Professor Dame Anna Dominiczak and Bailie Malcolm Balfour*
10:15- 11:00	**Opening lecture**, chair: Claudio Fiorino (IT), *All participants* **The adaptive medical physicist: new challenges, new needs, new roles.** *David Thwaites (AU) (invited speaker)*
	Breakout into different topics registered for
Room Alsh 2 11:15-13:15	Introduction to the workshop - *H. Palmans and B. Reniers* **Session 1: Micro- and nanodosimetric detectors** • Microdosimetric intercomparison in the ^{12}C 62MeV/A beam of LNS: *P. Colautti (IT)* • Development of silicon array microdosimeters: *J. Prieto-Pena (ES)* • Silicon microdosimeter array for micro beam therapy: *C. Guardiola (FR)* • Concept of a track imaging nanodosimeter: *V. Dangendorf (DE)*
13:15-14:30	**Lunch/commercial symposia**
14:30-16:30	**Session 2: Simulation of micro- and nanodosimetric distributions**

	• Monte Carlo modelling of track structure approaches and their link to radiobiology: *G. Baiocco (IT)* • nanoCluE, towards an RBE model based on the clustering of energy deposition patterns at a nanometric scale: *F. Villegas (SE)* • Testing LETd Monte Carlo scorers using microdosimetry quantities: *M. Cortés-Giraldo (ES)* • Uncertainty exercise for micro and nanodosimetric simulations (EURADOS): *H. Rabus (AT)*
16:30 -17:00	Coffee
Room: Lomond 17:00-18:00	Wrap up of the different topic workshops (10 min per topic) ▪ Medical physics research, GATE Monte Carlo simulations and treatment planning development for therapy with scanned particle beams ▪ Dosimetry audit in radiation oncology – where to next? ▪ In vivo dosimetry methods for external beam radiotherapy and brachytherapy ▪ Micro and nano dosimetry for radiotherapy Automate or perish

Social Event

Day 2	**Saturday 18 November**
Room: Alsh 2 08:00 – 10:00	**<u>Session 3a: Simulation of detectors</u>** • Formalism to compare microdosimetric spectra from different detectors: *G. Magrin (AT)* • Current status and future plans for microdosimetry at the National Physical Laboratory: *S. Galer (UK) and F. Romano (UK)* **<u>Session 3b: Past, present and future EU activities</u>** • MediNet: *P. Colautti and G. Magrin (AT)* • BioQuaRT, EMPIR projects and calls, EURADOS roadmap: *H. Rabus (DE)*
10:00-10:30	Coffee
10:30-12:30	**<u>Session 4: Relation with radiobiology</u>** • Radiobiological mechanisms and models: *K. Butterworth (UK)* • Relation of micro- and nanodosimetric quantities to radiobiology: *V. Conte (IT)*

	• Preparation of beam lines at CNA (Seville, Spain) for radiobiology experiments: *A. Baratto-Roldán (ES) and M.C. Battaglia (ES)* • Microdosimetry for brachytherapy: *B. Reniers (BE)*
12:30 - 14:00	**Lunch/commercial symposia**
14:00 – 15:00	**Session 5: Use of micro and nanodosimetric information in TPS response calculations** Topics for discussion introduced by *A. Ahnesjö (SE), A. Resch (AT), H. Rabus (DE)* and other participants
Room: Lomond 15:00 – 16:00	Wrap up of the different topic workshops (10 min per topic) ▪ Medical physics research, GATE Monte Carlo simulations and treatment planning development for therapy with scanned particle beams ▪ Dosimetry audit in radiation oncology – where to next? ▪ In vivo dosimetry methods for external beam radiotherapy and brachytherapy ▪ Micro and nano dosimetry for radiotherapy Automate or perish
16:00- 16:15	Closure

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