



C.H.U. de Charleroi

CHARLEROI 2011

XXVITH ANNUAL BHPA SYMPOSIUM



FRIDAY, FEBRUARY 4TH, 2011

**Venue : CEME,
Rue des Français, 147
6020 Charleroi**

- 08h00 – 14h00** **Registration**
Ground floor, Main entrance
- 08h25 – 08h30** **Opening of BHPA2011 Symposium**
Room: Auditorium
- 08h30 – 10h00** **Session 1 : Cone Beam CT in Medical Imaging and Radiotherapy**

Room: Auditorium
Chairmen: N. Buls/C. Vanhove

08:30 – 09:00 Invited speaker: J. Siewerdsen, *Johns Hopkins Institute, Baltimore, U.S.A.*

Cone-Beam CT: Image Quality and Application in Image-Guided Interventions

09:00 – 09:30 Invited speaker: M. Defrise, *UZ Brussel, Brussels, Belgium*

Image reconstruction methods for cone-beam computerized tomography

09:30 – 10:00 Invited speaker: J. J. Sonke, *N.K.I., Amsterdam, The Netherlands*

Cone Beam CT guided Radiation Therapy

- 10h00 – 10h30** **Coffee**
Exhibition Hall

- 10h30 – 12h30** **Session 2 : New techniques and innovations in Radiotherapy**

Room: Auditorium
Chairmen: N. Reynaert/F. Van den Heuvel

10:30 – 10:42 The Cyberknife: Commissioning and first experience. *V. Baart et al., CHU de Liège, Liège*

10:43 – 10:57 Quantification of the value of a robotic 6-degree of freedom treatment couch for frameless radiosurgery. *T. Gevaert et al., UZ Brussel, Brussels*

10:58 – 11:10 On the dosimetric challenges of dynamic jaws tomotherapy: a Monte-Carlo study. *E. Sterpin et al., Catholic University of Louvain, Brussels*

11:11 – 11:23 Clinical use of non-rigid image registration in head and neck cancer radiotherapy. *P. Castadot, Catholic University of Louvain, Brussels*

11:24 – 11:36 A planning comparison of dose patterns in lesion and organs at risk for rectal cancer using iPlan HybridArc and Tomotherapy treatment techniques. *T. Gevaert et al., UZ Brussel, Brussels*



11:37 – 11:49 Influence of changing magnetron and injector current on the beam characteristics of a Tomotherapy Hi-ART system. *I. Vandevondel et al., UZ Brussel, Brussels*

11:50 – 12:02 Geometric accuracy of a novel gimbals based radiation therapy tumor tracking system. *T. Depuydt et al., UZ Brussel, Brussels*

12:03 – 12:15 Lung-SBRT with RapidArc and RPM. *K. Geens et al., Limburgs Oncologisch Centrum, Hasselt*

12:16 – 12:28 First experiences with protontherapy: a physicist's point of view. *N. Linthout, I.B.A., Louvain-la-Neuve*

12h30 – 13h30 **Lunch**
Exhibition Hall

13h30 – 15h20 **Session 3A : Dosimetrists**

Room: Auditorium
Chairmen: Aude Vaandering/Dirk Verellen

Dosimetrist: How did I become a dosimetrist in a Radiotherapy Department and what am I doing ?

Medical Physicist: How did the arrival of a dosimetrist change the Medical Physics team and the Radiotherapy Department ?

13:30 – 13:40 **Center 1, Dosimetrist**, C. Leclercq, *CHU de Charleroi, Montigny-le-Tilleul*

13:40 – 13:50 **Center 1, Medical Physicist**, M. Tomsej, *CHU de Charleroi, Montigny-le-Tilleul*

13:50 – 14:00 **Center 2, Dosimetrist**, F. Van Hoof, *Iridium Kankernetwerk, Wilrijk*

14:00 – 14:10 **Center 2, Medical Physicist**, N. Mertens, *Iridium Kankernetwerk, Wilrijk*

14:10 – 14:20 **Center 3, Dosimetrist**, S. Cucchiaro, *CHU de Liège, Liège*

14:20 – 14:30 **Center 3, Medical Physicist**, V. Baart, *CHU de Liège, Liège*

14:30 – 14:40 **Center 4, Dosimetrist**, B. Vanstraelen, *UZ Leuven, Leuven*

14:40 – 14:50 **Center 4, Medical Physicist**, F. Vandenheuvel, *UZ Leuven, Leuven*

14:50 – 15:05 Current status, perspectives, goals (BHPA/FANC), K. Feyen, *President of BHPA*

15:05 – 15:20 Wrap-up, Round table



13h30 – 14h50 Session 3B (Parallel session) : Medical Imaging

Room: Parallel Session Room
Chairmen: K. Bacher/F. Malchair

13:30 – 13:42 The effect of reconstruction algorithms on clinical image quality in digital breast tomosynthesis: a pilot study. *L. Cockmartin et al., UZ Leuven, Leuven*

13:43 – 13:55 Volumetric measurements with comparison of manual, RECIST and lung care software methods: a phantom study. *J. Paul et al., Goethe University Hospital, Frankfurt main, Germany*

13:56 – 14:08 Correlation of contrast-detail analysis and clinical image quality for chest radiography based on a human cadaver study. *A. De Crop et al., Ghent University, Ghent*

14:09 – 14:21 Accuracy estimation of spectral attenuation curves obtained by Dual Energy CT. *G. Van Gompel, UZ Brussel, Brussels*

14:22 – 14:34 Evaluation of image quality on fluoroscopy systems. *J. Nens et al., UZ Leuven, Leuven*

14:35 – 14:47 The use of detectability indices as means of Automatic Exposure Control for a digital mammography system. *E. Salvagnini et al., UZ Leuven, Leuven*

15h20 – 15h50 Coffee
Exhibition Hall

15h50 – 17h20 General Assembly of BHPA
Room: Auditorium

19h00 Social event (Le Bois du Cazier, Marcinelle)

20h00 Conference dinner (Le Bois du Cazier, Marcinelle)

Le Bois du Cazier
Rue du cazier, 80
6001- Marcinelle
www.leboisducazier.be



SATURDAY, FEBRUARY 5TH, 2011

08h00 – 08h30 Registration/Breakfast/Coffee
Ground floor, main entrance and Exhibition Hall

08h30 – 10h30 Session 4 : QA in Medical Physics

Room: Auditorium
Chairmen: C. Bernard/M. T. Hoornaert

08:30 – 09:00 Invited speaker: R. Boellard, *VU University Medical Center, Amsterdam, The Netherlands*

Standardisation of FDG PET/CT imaging for tracer uptake quantification and automated metabolic volume assessment

09:00 – 09:12 Alanine/EPR dosimetry applied to the verification of a total body irradiation protocol and treatment planning dose calculation in a humanoid phantom. *B. Schaeken et al., ZNA Middelheim, Antwerp*

09:13 – 09:25 Stability of MVCT images for dose calculation. *M. Duchateau et al., UZ Brussel, Brussels*

09:26 – 09:38 The Radiological Physics Center's and MD Anderson Phantom Lab's Anthropomorphic Phantom family. *A. Molineu et al., RPC/MD Anderson Lab, Houston, U.S.A.*

09:39 – 09:51 Phantom program analysis to assess the clinical imaging quality of different PET-CT centres. *B. Vanderlinden et al., Institut Bordet, Brussels*

09:52 – 10:04 Validation of beam parameterization in Pinnacle 38.0m for head and neck IMRT. *S. Sobczak et al., CHU de Liège, Liège*

10:05 – 10:17 Commissioning of the TPS Monaco v2.03: dosimetric results. *A. Delor et al., St-Luc University Hospital, Brussels*

10:18 – 10:30 Prostate post-implant dosimetry: a comprehensive interobserver study to investigate uncertainties introduced by seed localisation, contouring and fusion. *M. De Brabandere et al., UZ Leuven, Leuven*

10h30 – 11h00 Coffee
Exhibition Hall

11h00 – 12h30 Parallel Session 5A : Dosimetry tools in Radiotherapy

Room: Auditorium
Chairmen: C. De Wagter/S. Vynckier

11:00 – 11:12 Dosimetry audit based on NCS report 18 in Belgium and the Netherlands. *T. Perik et al., NKI, Amsterdam, The Netherlands*

11:13 – 11:25 Quality assurance audit for photon and electron beams (BELdART): how good we'r doing ? *B. Schaeken et al., ZNA Middelheim, Antwerp*



- 11:26 – 11:38** An in-house developed resettable MOSFET dosimeter for radiotherapy. *S. Van Vaerenbergh et al., UZ Brussel, Brussels*
- 11:39 – 11:51** Reference dosimetry for tomotherapy: practical implementation and multi-centre validation. *B. De Ost et al., ZNA Middelheim, Antwerp*
- 11:52 – 12:04** IMRT pre-treatment verifications using Gafchromic EBT2 films. *M. Mathot et al., CHU de Liège, Liège*
- 12:05 – 12:17** Monte-Carlo study of prompt gamma emissions for range control in hadrontherapy. *J. Smeets et al., Université Libre de Bruxelles, Brussels*
- 12:18 – 12:30** Portal dosimetry. *P. Henry et al., CHU de Liège, Liège*

11h00 – 12h30 Parallel Session 5B (Parallel Session) : Dosimetry in Radiology

Room: Parallel Session Room
Chairmen: H. Bosmans/B. Vanderlinden

- 11:00 – 11:12** Longitudinal tube modulation for chest and abdominal CT examinations: impact on effective patient dose calculations. *F. Zanca et al., UZ Leuven, Leuven*
- 11:13 – 11:25** Patient dose reduction in coronary angiography when using a 3-dimensional rotational X-ray technique. *L. Eloot et al., Ghent University, Ghent*
- 11:26 – 11:38** A description of an innovative software for patient dose long term recording. *F. Malchair et al., Liège*
- 11:39 – 11:51** DLP reduction reflects lower DNA damage in patients undergoing contrast CT. *L. Beels et al., Ghent University, Ghent*
- 11:52 – 12:04** Estimation of patient dose, organ dose and image quality for three chest protocols: standard screening, partial CT scanning and dual-source. *F. Zanca et al., UZ Leuven, Leuven*
- 12:05 – 12:17** The determination of dose area product trigger levels to predict the exceeding of thresholds for deterministic effect at the skin for interventional radiology: TRIR project. *F. Bleeser et al., Hopital Jolimont-Lobbes, Haine-St-Paul*
- 12:18 – 12:30** Guidelines for the optimization of extremity and eye lens doses for medical staff – The ORAMED project. *L. Struelens et al., SCK-CEN, Mol*

12h30 – 13h30 Lunch
Exhibition Hall

13h30 – 14h35 Session 6 : Radiation Protection and Optimization

Room: Auditorium
Chairmen: K. Bacher/N. Buls



13:30 – 13:42 Dismantling of a high energy Clinac 2100C: an activated waste study. *D. Belge et al., Centre de Radiothérapie des Ardennes, Charleville-Mézières, France*

13:43 – 13:55 Photostimulable phosphor plates as high resolution 2D dose measuring devices in radiotherapy. *W. Crijns et al., UZ Leuven, Leuven*

13:56 – 14:08 Measurement of eye lens doses in interventional radiology/cardiology. *F. Vanhavere et al., SCK-CEN, Mol*

14:09 – 14:21 Peripheral doses in prostate cancer radiotherapy: a comparison between IMRT and RapidArc treatments. *G. Defraene et al., UZ Leuven, Leuven*

14:22 – 14:34 An overview of extremity doses for nuclear medicine in Belgium: the EXDOS project. *S. Krim et al., SCK-CEN, Mol*

14h35 – 15h05 **Coffee**
Exhibition Hall

15h05 – 16h50 **Session 7 : Biological considerations in Medical Physics**

Room: Auditorium
Chairmen: M. Tomsej/D. Verellen

15:05 – 15:35 Invited Speaker: M. Alber, *Tübingen, Germany*

Robust treatment planning optimization in statistical theory

15:35 – 16:05 Invited Speaker: H. Thierens, *Ghent University, Ghent*

Research to support the clinical relevance of medical physics in radiology

16:05 – 16:50 **Debate:**

“BIOLOGICAL OPTIMIZED TREATMENT PLANNING: SENSE OR NON-SENSE ?”

Sense: M. Alber, Tübingen, Germany

vs

Non-Sense: W. De Neve, Ghent University Hospital, Ghent

16h50 **Awards - Closing**



Poster Presentations (First floor Hall)

- P1** The effects of tissue inhomogeneities on dose distributions and consequences for treatment planning in radiotherapy, *Chaikh*
- P2** Comparison of effective dose of chest using dose length product ICRP-60 and ICRP-103 methods in a dual source computed tomography, *J. Paul*
- P3** The relationship of image noise in a dual source computed tomography scanner with different clinical protocols and reconstruction kernels. Study with an anthropomorphic and water phantom, *J. Paul*
- P4** An overview of extremity and eye lens doses for interventional X-ray procedures in Belgium: the EXDOS project, *Krim*
- P5** Use of active personal dosimeters in interventional radiology and cardiology, *L. Struelens*
- P6** The effect of tissue heterogeneities on dose distribution of Ir192 HDR brachytherapy using Monte-Carlo simulations, *Adelnia*
- P7** Dosimetry audits based on NCS 18 report 18 in Belgium and the Netherlands, *T. Perik*