3rd Annual ARDENT Workshop

Report of Contributions

Contribution ID: **0**   Type: **not specified**

Eleni AZA (ESR 1)

Monday 29 September 2014 13:45 (25 minutes)

Primary author: AZA, Eleni (CERN)

Presenter: AZA, Eleni (CERN)

Session Classification: ESRs presentations

Contribution ID: **1** Type: **not specified**

Erik Frojd (ESR 2)

Monday 29 September 2014 14:10 (25 minutes)

Co-author: FROJD, Erik (Mittuniversitetet (SE))

Presenter: FROJD, Erik (Mittuniversitetet (SE))

Session Classification: ESRs presentations

Contribution ID: **2**   Type: **not specified**

Silvia Puddu (ESR 3)

Monday 29 September 2014 14:35 (25 minutes)

Primary author: PUDDU, Silvia (CERN)

Presenter: PUDDU, Silvia (CERN)

Session Classification: ESRs presentations

Contribution ID: **3**　　　　　　　　　　　　　　　　　Type: **not specified**

Stuart George (ESR 4)

Monday 29 September 2014 15:00 (25 minutes)

Primary author: GEORGE, Stuart Patrick (CERN)

Presenter: GEORGE, Stuart Patrick (CERN)

Session Classification: ESRs presentations

Contribution ID: 4

Type: **not specified**

Jayasimha Bagalkote (ESR 5)

Monday 29 September 2014 15:55 (25 minutes)

Primary author: BAGALKOTE, Jayasimha

Presenter: BAGALKOTE, Jayasimha

Session Classification: ESRs presentations

Contribution ID: **5**　　　　　　　　　　　　　　　　　　Type: **not specified**

Andrej Sipaj (ESR 6)

Monday 29 September 2014 16:20 (25 minutes)

Presenter: SIPAJ, Andrej

Session Classification: ESRs presentations

Contribution ID: **6**　　　　　　　　　　　　　　　Type: **not specified**

Ivan Caicedo Sierra (ESR 7)

Monday 29 September 2014 16:45 (25 minutes)

Primary author: CAICEDO SIERRA, Ivan Dario (Czech Technical University (CZ))

Presenter: CAICEDO SIERRA, Ivan

Session Classification: ESRs presentations

Contribution ID: **7** Type: **not specified**

Kevin Loo (ESR 8)

Monday 29 September 2014 17:10 (25 minutes)

Primary author: LOO, Kevin Jia-Jin

Presenter: LOO, Kevin Jia-Jin

Session Classification: ESRs presentations

Contribution ID: **8**   Type: **not specified**

Benedikt Bergmann (ESR 9)

Monday 29 September 2014 17:35 (25 minutes)

Primary author: BERGMANN, Benedikt Ludwig (Czech Technical University (CZ))

Presenter: BERGMANN, Benedikt Ludwig (Czech Technical University (CZ))

Session Classification: ESRs presentations

Contribution ID: **9**   Type: **not specified**

Francesca Bisello (ESR 10)

Tuesday 30 September 2014 09:00 (25 minutes)

Primary author: Mrs BISELLO, Francesca

Presenter: Mrs BISELLO, Francesca

Session Classification: ESRs presentations

Contribution ID: **10** Type: **not specified**

Michele Togno (ESR 11)

Tuesday 30 September 2014 09:25 (25 minutes)

Primary author: TOGNO, Michele

Presenter: TOGNO, Michele

Session Classification: ESRs presentations

Contribution ID: **11** Type: **not specified**

Vijayaragavan Viswanathan (ESR 12)

Tuesday 30 September 2014 09:50 (25 minutes)

Primary author: Dr VISWANATHAN, Vijayaragavan

Presenter: Dr VISWANATHAN, Vijayaragavan

Session Classification: ESRs presentations

Contribution ID: **12**

Type: **not specified**

Alvin Sashala Naik (ESR 13)

Tuesday 30 September 2014 10:45 (25 minutes)

Primary author: SASHALA NAIK, Alvin

Presenter: SASHALA NAIK, Alvin

Session Classification: ESRs presentations

Contribution ID: **13**   Type: **not specified**

Eleni Sagia (ESR 14)

Tuesday 30 September 2014 11:10 (25 minutes)

Primary author: SAGIA, Elena (National Technical Univ. of Athens (GR))

Presenter: SAGIA, Elena (National Technical Univ. of Athens (GR))

Session Classification: ESRs presentations

Contribution ID: **14** Type: **not specified**

Chris Cassel (ESR 15)

Tuesday 30 September 2014 11:35 (25 minutes)

Primary author: CASSELL, Christopher (P)

Presenter: CASSELL, Christopher (P)

Session Classification: ESRs presentations

Contribution ID: **15**   Type: **not specified**

Historical Review: Radiation Oncology - Dr. Juan Carlos Celi, Chief Innovation Officer IBA Dosimetry

Wednesday 1 October 2014 09:00 (1 hour)

Primary author: Dr CELI, Juan-Carlos

Presenter: Dr CELI, Juan-Carlos

Session Classification: Training Course

Contribution ID: **16**   Type: **not specified**

Linear Accelerators, Concept, Physics and Treatment Delivery Techniques - Dr. Lutz Mueller, Director, IBA International Competence Center

Wednesday 1 October 2014 10:00 (1 hour)

Primary author: Dr MUELLER, Gero Lutz (III. Physikalisches Institut (B)-Rheinisch-Westfaelische Tech. H)

Presenter: Dr MUELLER, Gero Lutz (III. Physikalisches Institut (B)-Rheinisch-Westfaelische Tech. H)

Session Classification: Training Course

Contribution ID: **17**   Type: **not specified**

Linear Accelerators, Concept, Physics and Treatment Delivery Techniques - Dr. Lutz Mueller, Director, IBA International Competence Center

Wednesday 1 October 2014 11:15 (45 minutes)

Primary author: MUELLER, Gero Lutz (III. Physikalisches Institut (B)-Rheinisch-Westfaelische Tech. H)

Presenter: MUELLER, Gero Lutz (III. Physikalisches Institut (B)-Rheinisch-Westfaelische Tech. H)

Session Classification: Training Course

Contribution ID: **18**   Type: **not specified**

Treatment Planning basics - MSc. Ruxandra Fizesan, Physics and Innovation, IBA Dosimetry

Wednesday 1 October 2014 12:00 (20 minutes)

Primary author: FIZESAN, Ruxandra

Presenter: FIZESAN, Ruxandra

Session Classification: Training Course

Contribution ID: **19** Type: **not specified**

Absolute Dosimetry and Relative Dosimetry (Practical Session, Linear Accelerator, 1D detectors: IC chambers and Diodes) - MSc. Jiří Valenta, Dosimetry Laboratory, Dr. Christian Vogel, MSc. Michele Togno, Physics and Innovation, IBA Dosimetry

Wednesday 1 October 2014 13:30 (1h 30m)

Presenter: Dr VOGEL, Christian

Session Classification: Training Course

Contribution ID: **20**
Type: **not specified**

Quality Assurance: Machine Quality Assurance and Patient Plans Quality Assurance (1D and 2D Area Detectors, Solid State Detectors, EPID Dosimetry) - Dr. David Menichelli, MSc Ruxandra Fizesan and MSc. Michele Togno, Physics and Innovation, IBA Dosimetry

Wednesday 1 October 2014 15:30 (1h 45m)

Session Classification: Training Course

Contribution ID: **21**   Type: **not specified**

Welcome to IBA Dosimetry - Dr. Juan Carlos Celi, Chief Innovation Officer IBA Dosimetry

Wednesday 1 October 2014 08:30 (30 minutes)

Session Classification: Training Course

Contribution ID: **22**   Type: **not specified**

Historical Review and Modalities Diagnostics for Oncology - Dipl. Eng. Daniel Boedeker, Product manager, IBA Dosimetry

Thursday 2 October 2014 09:00 (1 hour)

Primary author: Dr BÖDEKER, Daniel

Presenter: Dr BÖDEKER, Daniel

Session Classification: Training Course

Contribution ID: **23**   Type: **not specified**

Quality Assurance of X-Ray Devices. Part one - Dosimetry: Use of IBA MagicMax QA system - MSc. Francesca Bisello, Physics and Innovation, IBA Dosimetry and Dipl. Eng. Daniel Boedeker, Product manager, IBA Dosimetry

Thursday 2 October 2014 10:00 (1 hour)

Presenter: Dr BÖDEKER, Daniel

Session Classification: Training Course

Contribution ID: **24**   Type: **not specified**

Quality Assurance of X-Ray Devices. Part two - Image Quality: Use of IBA MagicMax QA system - MSc. Francesca Bisello, Physics and Innovation, IBA Dosimetry and Dipl. Eng. Daniel Boedeker, Product manager, IBA Dosimetry

Thursday 2 October 2014 11:15 (45 minutes)

Presenter: Dr BÖDEKER, Daniel

Session Classification: Training Course

Contribution ID: **25**   Type: **not specified**

Dr. Jan Jakubek: Detector response to highly energetic particles

Thursday 2 October 2014 13:30 (50 minutes)

Primary author: Dr JAKUBEK, Jan (Czech Technical University (CZ))

Presenter: Dr JAKUBEK, Jan (Czech Technical University (CZ))

Session Classification: Training Course

Contribution ID: **26**   Type: **not specified**

Dr. David Menichelli: Dosimetry with silicon pixel detectors

Thursday 2 October 2014 14:20 (50 minutes)

Dosimetry with silicon pixel detectors
David Menichelli
IBA Dosimetry GmbH
Silicon sensors are widely adopted in clinical dosimetry due to small size and reliable manufacture technology, and many detectors have been developed based on either single diodes or arrays. The goal of this training course is to present physics and technology of silicon dosimeters for radiotherapy, with special regard to arrays aimed to the characterization of external photon beams.
An introduction to silicon dosimeters is given in the first part of the talk, starting from motivations to use silicon diodes in clinical applications and detector operating principle, which is based on diffusion of excess carriers (diode are typically used in photovoltaic mode). Performances parameters which depend on chip details (sensitivity dependence on dose, dose rate and temperature, quantum noise) and overall detector design (energy dependence and angular dependence) are presented. Influence on radiation induced traps and recombination centers on these parameters are discussed in detail, together with the technical solutions which can be used to improve chip radiation hardness.
The second part is dedicated to the discussion of diode arrays. Solutions available on the market (all based on arrays of single dies) are reviewed, including detectors developed for a variety of applications such as LINAC commissioning, quality assurance and patient plan verification. Then research prototypes developed by several institutions during last ten year are presented. Their common feature is a decrease of pixel size and pitch beyond the specifications of commercial devices, toward the ultimate values which would be useful for clinical applications (respectively ˜0.1mm2 active area and ˜1mm pixel pitch). In contrast with commercial devices, most of research projects adopt monolithic sensors, in which diodes are not cut from the wafer.
Finally, the various design solutions (both at sensor and system level) which have been presented are critically analyzed and discussed, and compared with present clinical needs.

Primary author: MENICHELLI, David (Unknown)

Presenter: MENICHELLI, David (Unknown)

Session Classification: Training Course

Contribution ID: **27**   Type: **not specified**

Dr. Thomas Weber: Phase contrast imaging with semiconductor pixel detectors

Thursday 2 October 2014 15:40 (50 minutes)

Primary author: WEBER, Thomas

Presenter: WEBER, Thomas

Session Classification: Training Course

Contribution ID: **28**   Type: **not specified**

Dr. A. Rozenfeld: Progress in QA of Absorbed and Biological Doses delivery in contemporary radiotherapy

Monday 29 September 2014 18:00 (1 hour)

Summary

Progress in QA of Absorbed and Biological Doses delivery in contemporary radiotherapy

Primary author: ROZENFELD, Anatoly

Presenter: ROZENFELD, Anatoly

Session Classification: Seminar

Contribution ID: **30**　　　　　　　　　　　　　　　　　　Type: **not specified**

Welcome & Introduction

Monday 29 September 2014 13:30 (15 minutes)

Presenter: SILARI, Marco (CERN)

Session Classification: Marco Silari: Welcome & Introduction

Contribution ID: **31**   Type: **not specified**

Dr. Werner RÜHM - The ICRP Radiation Protection Framework

Tuesday 30 September 2014 18:00 (1 hour)

Primary author: Prof. RÜHM, Werner

Presenter: Prof. RÜHM, Werner

Session Classification: Seminar