

CERN-hosted Workshop on Design Characteristics of a Novel Linear Accelerator for Challenging Environments - Improving global access to radiation therapy



Report of Contributions

Contribution ID: 2

Type: **not specified**

I. Welcome to CERN: Frederick Bordry

Monday 7 November 2016 08:30 (5 minutes)

Presenter: BORDRY, Frederick (CERN)

Contribution ID: 3

Type: **not specified**

II. Welcome and Goals of the Workshop: Norman Coleman, Manjit Dosanjh and David Pistenmaa

Monday 7 November 2016 08:35 (10 minutes)

Presenters: COLEMAN, C. Norman (National Cancer Institute); PISTENMAA, David; DOSANJH, Manjit

Contribution ID: 4

Type: **not specified**

III. A. Summary of findings of the Global Task Force for Radiation Control Cancer (GTFRCC)

Monday 7 November 2016 08:50 (15 minutes)

Presenter: GOSPODAROWICZ, Mary

Session Classification: III. Unique Partnerships to Improve Radiation Oncology in Low- and Middle-Income Countries: Moderator: Manjit Dosanjh

Contribution ID: 8

Type: **not specified**

IV. B. Open Discussion

Monday 7 November 2016 10:45 (10 minutes)

Session Classification: IV. Lessons from Past and Current Radiation Therapy Initiatives: What Works or Does not Work in Low- and Middle-Income Countries, and Why: Moderator: Yakov Pipman

Contribution ID: 17

Type: **not specified**

XII. Concluding Remarks by Workshop Co-organizers

Tuesday 8 November 2016 15:00 (5 minutes)

Presenters: COLEMAN, C. Norman (National Cancer Institute); PISTENMAA, David (ICEC); DOSANJH, Manjit (CERN)

Contribution ID: 18

Type: **not specified**

III. B. Balancing Equity and Advancement in Radiotherapy: How Economics Can Help Solve Global Health Challenges

Monday 7 November 2016 09:05 (15 minutes)

Presenter: RODIN, Danielle

Session Classification: III. Unique Partnerships to Improve Radiation Oncology in Low- and Middle-Income Countries: Moderator: Manjit Dosanjh

Contribution ID: 19

Type: **not specified**

III. D. Treatment not Terror: Improving Cancer Treatment while Reducing Security Risks

Monday 7 November 2016 09:35 (15 minutes)

Presenter: POMPER, Miles

Session Classification: III. Unique Partnerships to Improve Radiation Oncology in Low- and Middle-Income Countries: Moderator: Manjit Dosanjh

Contribution ID: 20

Type: **not specified**

IV. A. IAEA's perspective

Monday 7 November 2016 10:25 (20 minutes)

Presenter: ZUBIZARRETA, Zubi

Session Classification: IV. Lessons from Past and Current Radiation Therapy Initiatives: What Works or Does not Work in Low- and Middle-Income Countries, and Why: Moderator: Yakov Pipman

Contribution ID: 21

Type: **not specified**

IV. C. Industry's experience

Presenter: FEHERVARY, Andras

Session Classification: IV. Lessons from Past and Current Radiation Therapy Initiatives: What Works or Does not Work in Low- and Middle-Income Countries, and Why: Moderator: Yakov Pipman

Contribution ID: 22

Type: **not specified**

V. A. Radiation Oncology in Africa; Current State and Future Goals

Monday 7 November 2016 11:00 (15 minutes)

Presenter: GROVER, Surbhi

Session Classification: V. Design Considerations for a Linear Accelerator for Challenging Environments - Moderator: Richard Lanza

Contribution ID: 23

Type: **not specified**

V. B. Machine Parameters and Machine Operational Features to Satisfy Requirements

Monday 7 November 2016 11:15 (20 minutes)

Presenter: MEGHZIFENE, Ahmed

Session Classification: V. Design Considerations for a Linear Accelerator for Challenging Environments - Moderator: Richard Lanza

Contribution ID: 24

Type: **not specified**

V. C. "Dreamliner" Novel Linear Accelerator Features for Challenging Environments

Monday 7 November 2016 11:35 (5 minutes)

Presenter: PISTENMAA, David (ICEC)

Session Classification: V. Design Considerations for a Linear Accelerator for Challenging Environments - Moderator: Richard Lanza

Contribution ID: 25

Type: **not specified**

VI. NASA's Experience in the Modular Design of Complex Systems

Monday 7 November 2016 11:40 (20 minutes)

Presenter: COBBS, Ron

Contribution ID: 27

Type: **not specified**

VII. B. Considerations at TERA

Session Classification: VII. Options for Achieving a Novel Linear Accelerator for Challenging Environments; Exploiting advances in technology.

Contribution ID: 28

Type: **not specified**

VII. C. Considerations from other organizations

Session Classification: VII. Options for Achieving a Novel Linear Accelerator for Challenging Environments; Exploiting advances in technology.

Contribution ID: 29

Type: **not specified**

VII. D. Open Discussion

Session Classification: VII. Options for Achieving a Novel Linear Accelerator for Challenging Environments; Exploiting advances in technology.

Contribution ID: 30

Type: **not specified**

IX. A. How do we translate design characteristics into a working machine (From machine shop to the clinic)?

Tuesday 8 November 2016 10:25 (15 minutes)

Presenter: BERNIER, Jacques (GSMN)

Session Classification: IX. What Will it Take to Make it Happen?: Moderator: Bruce Curran

Contribution ID: 31

Type: **not specified**

IX. B. Challenges in introducing new technology in the developing world

Tuesday 8 November 2016 10:40 (15 minutes)

Presenter: FEHERVARY, Andras

Session Classification: IX. What Will it Take to Make it Happen?: Moderator: Bruce Curran

Contribution ID: 32

Type: **not specified**

IX. D. Determining the cost of new technologies such as the linear accelerator under consideration

Tuesday 8 November 2016 11:10 (15 minutes)

Presenter: LIEVENS, Yolande

Session Classification: IX. What Will it Take to Make it Happen?: Moderator: Bruce Curran

Contribution ID: 33

Type: **not specified**

IX. E. How do you deal with cost-effectiveness of a new linear accelerator and its implications for low-resource settings?

Presenter: RODIN, Danielle

Session Classification: IX. What Will it Take to Make it Happen?: Moderator: Bruce Curran

Contribution ID: 34

Type: **not specified**

IX. C. Entrepreneurial strategies to make it happen

Tuesday 8 November 2016 10:55 (15 minutes)

Presenter: SINGH, Ajit

Session Classification: IX. What Will it Take to Make it Happen?: Moderator: Bruce Curran

Contribution ID: 35

Type: **not specified**

X. A. 1. Clinical considerations

Tuesday 8 November 2016 11:30 (15 minutes)

Norman Coleman for Niloy Datta

Presenter: COLEMAN, C. Norman (National Cancer Institute)

Session Classification: X. Essential and Sustainable Infrastructure Needs in Challenging Environments: Moderator: Norman Coleman

Contribution ID: 36

Type: **not specified**

X. B. 1. Using modern technology to share medical knowledge worldwide

Tuesday 8 November 2016 13:00 (20 minutes)

Presenter: ZUBIZARRETA, Zubi

Session Classification: X. Essential and Sustainable Infrastructure Needs in Challenging Environments: Moderator: Norman Coleman

Contribution ID: 37

Type: **not specified**

X. C. Panel Discussion: Planning for Sustainable Training of Professional and Ancillary Personnel in Developing Countries. Moderator: Yolande Lievens

1. Overview by the moderator
2. Presentations by panel members: Norman Coleman, ICEC; Bruce Curran, AAPM; Nelly Enwerem-Bromson, IAEA; Patricia Hardenbergh, ASTRO; Ahmed Meghzifene, IAEA; Yakov Pipman, MPWB
3. Open discussion

Presenter: LIEVENS, Yolande

Session Classification: X. Essential and Sustainable Infrastructure Needs in Challenging Environments: Moderator: Norman Coleman

Contribution ID: 38

Type: **not specified**

XI. A. Summary of recommendations from the Workshop

3:00 - 1. Design characteristics for a novel linear accelerator for challenging environments: Alberto Degiovanni or designee

3:15 - 2. Achieving and sustaining the necessary infrastructure in challenging environments: Can we get by with less? Vik Vikram

3:30 - 3. Estimating the needs and planning for sustainable training of radiotherapy professional and ancillary staff in developing countries: Onyinye Balogun

Presenters: COLEMAN, C. Norman (National Cancer Institute); PISTENMAA, David (ICEC); DOSANJH, Manjit (CERN)

Session Classification: XI. Recommendations from the Workshop and Plans for the Future: Norman Coleman, Manjit Dosanjh and David Pistenmaa

Contribution ID: 39

Type: **not specified**

XI. B. Next steps

Tuesday 8 November 2016 16:20 (10 minutes)

1. Preparation of a Summary Report of the Workshop
2. Dissemination of information from the Workshop
3. Recommended additional actions

Presenters: COLEMAN, C. Norman (National Cancer Institute); PISTENMAA, David (ICEC); DOSANJH, Manjit (CERN)

Session Classification: XI. Recommendations from the Workshop and Plans for the Future: Norman Coleman, Manjit Dosanjh and David Pistenmaa

Contribution ID: 41

Type: **not specified**

III. C. Cobalt-60 and Cancer Treatment: the NNSA Radiological Security Mission

Monday 7 November 2016 09:20 (15 minutes)

Presenter: HOLT, Katherine

Session Classification: III. Unique Partnerships to Improve Radiation Oncology in Low- and Middle-Income Countries: Moderator: Manjit Dosanjh

Contribution ID: 42

Type: **not specified**

VII. (Part 2) A. Technical presentations. Co-moderators: Ugo Amaldi and Alberto Degiovanni

10 Design Considerations (Accelerator Structure operating Frequency; Types of Structure; Power Sources (? Magnetrons); Multi-leaf collimator): Maurizio Vretenar

11 PHASER: Application of Advanced RF Linac Technology to Medical Accelerators: Sami Tantawi and Billy Loo

12 Conclusions: Ugo Amaldi

Presenters: DEGIOVANNI, Alberto (CERN); AMALDI, Ugo (TERA Foundation (IT))

Session Classification: VII. Options for Achieving a Novel Linear Accelerator for Challenging Environments; Exploiting advances in technology.

Contribution ID: 43

Type: **not specified**

VII. B. Open discussion. Co-moderators: Ugo Amaldi, Alberto Degiovanni and David Pistenmaa

Monday 7 November 2016 16:30 (30 minutes)

Session Classification: VII. Options for Achieving a Novel Linear Accelerator for Challenging Environments; Exploiting advances in technology.

Contribution ID: 44

Type: **not specified**

VIII. A. Recommendations emanating from Session VII

Tuesday 8 November 2016 08:35 (25 minutes)

Presenters: DEGIOVANNI, Alberto (CERN); AMALDI, Ugo (TERA Foundation (IT))

Session Classification: VIII. Summary of Design Characteristics for a Novel Linear Accelerator for Challenging Environments: Moderator: David Jaffray

Contribution ID: 45

Type: **not specified**

VIII. B. Open discussion

Tuesday 8 November 2016 09:00 (50 minutes)

Session Classification: VIII. Summary of Design Characteristics for a Novel Linear Accelerator for Challenging Environments: Moderator: David Jaffray

Contribution ID: 46

Type: **not specified**

VII. A. 1. Goals of Session VII

Monday 7 November 2016 13:00 (5 minutes)

Author: AMALDI, Ugo (TERA Foundation (IT))

Presenters: DEGIOVANNI, Alberto (CERN); AMALDI, Ugo (TERA Foundation (IT))

Session Classification: VII. Options for Achieving a Novel Linear Accelerator for Challenging Environments; Exploiting advances in technology.

Contribution ID: 47

Type: **not specified**

VII. A. 2. Experience gained from the GlobalDiagnostiX project

Monday 7 November 2016 13:05 (17 minutes)

Presenter: SAHLI, Romain

Session Classification: VII. Options for Achieving a Novel Linear Accelerator for Challenging Environments; Exploiting advances in technology.

Contribution ID: 48

Type: **not specified**

VII. A. 5. IORT linac and possible developments

Monday 7 November 2016 13:56 (17 minutes)

Presenter: PICARDI, Luigi

Session Classification: VII. Options for Achieving a Novel Linear Accelerator for Challenging Environments; Exploiting advances in technology.

Contribution ID: 49

Type: **not specified**

VII. A. 6. Experience on Electron Linacs at NCBJ (Poland)

Monday 7 November 2016 14:13 (17 minutes)

Presenter: ADRICH, Przemek

Session Classification: VII. Options for Achieving a Novel Linear Accelerator for Challenging Environments; Exploiting advances in technology.

Contribution ID: 50

Type: **not specified**

VII. A. 4. Electron Linac Projects in Pakistan with CERN support

Monday 7 November 2016 13:39 (17 minutes)

Presenter: ZEESHAN, Sumaira

Session Classification: VII. Options for Achieving a Novel Linear Accelerator for Challenging Environments; Exploiting advances in technology.

Contribution ID: 51

Type: **not specified**

VII. A. 3. Problems posed by "difficult" environments to present linac-based systems

Monday 7 November 2016 13:22 (17 minutes)

Presenter: ALLEN, John

Session Classification: VII. Options for Achieving a Novel Linear Accelerator for Challenging Environments; Exploiting advances in technology.

Contribution ID: 52

Type: **not specified**

VII. A. 7. Robust X-ray imaging

Monday 7 November 2016 14:30 (17 minutes)

Presenter: JAFFRAY, David

Session Classification: VII. Options for Achieving a Novel Linear Accelerator for Challenging Environments; Exploiting advances in technology.

Contribution ID: 53

Type: **not specified**

VII. A. 8. Lower cost RT through new software tools (optimization and automation)

Monday 7 November 2016 14:47 (17 minutes)

Presenter: LOF, Johan

Session Classification: VII. Options for Achieving a Novel Linear Accelerator for Challenging Environments; Exploiting advances in technology.

Contribution ID: 54

Type: **not specified**

VII. A. 9. Shielding in "difficult" environments

Monday 7 November 2016 15:30 (17 minutes)

Presenter: KRAWCZYK, Pawel

Session Classification: VII. Options for Achieving a Novel Linear Accelerator for Challenging Environments; Exploiting advances in technology.

Contribution ID: 55

Type: **not specified**

VII. A. 11. General Design Considerations on Structures, Power Sources and Accessories

Monday 7 November 2016 16:04 (17 minutes)

Presenter: VRETENAR, Maurizio

Session Classification: VII. Options for Achieving a Novel Linear Accelerator for Challenging Environments; Exploiting advances in technology.

Contribution ID: 56

Type: **not specified**

VII. A. 10. PHASER: Application of Advanced RF Linac Technology to Medical Accelerators

Monday 7 November 2016 15:47 (17 minutes)

Presenters: LOO, Billy; TANTAWI, Sami

Session Classification: VII. Options for Achieving a Novel Linear Accelerator for Challenging Environments; Exploiting advances in technology.

Contribution ID: 57

Type: **not specified**

VII. A. 12. Conclusions

Monday 7 November 2016 16:21 (9 minutes)

Presenter: AMALDI, Ugo (TERA Foundation (IT))

Session Classification: VII. Options for Achieving a Novel Linear Accelerator for Challenging Environments; Exploiting advances in technology.

Contribution ID: 58

Type: **not specified**

X. A. 2. Equipment and facility needs.

Tuesday 8 November 2016 11:45 (15 minutes)

Presenter: MEGHZIFENE, Ahmed

Session Classification: X. Essential and Sustainable Infrastructure Needs in Challenging Environments: Moderator: Norman Coleman

Contribution ID: 59

Type: **not specified**

X. C. 1. Overview by the moderator

Tuesday 8 November 2016 13:25 (5 minutes)

Presenter: LIEVENS, Yolande

Session Classification: X. Essential and Sustainable Infrastructure Needs in Challenging Environments: Moderator: Norman Coleman

Contribution ID: 60

Type: **not specified**

X. C. 2. Presentations by panel members: Norman Coleman, ICEC; Bruce Curran, AAPM; Nelly Enwerem-Bromson, IAEA; Patricia Hardenbergh, ASTRO; Ahmed Meghzifene, IAEA; Yakov Pipman, MPWB

Tuesday 8 November 2016 13:30 (30 minutes)

Presenters: MEGHZIFENE, Ahmed; CURRAN, Bruce; COLEMAN, C. Norman (National Cancer Institute); ENWEREM-BROMSON, Nelly; HARDENBERGH, Patti; Dr PIPMAN, Yakov (MPWB)

Session Classification: X. Essential and Sustainable Infrastructure Needs in Challenging Environments: Moderator: Norman Coleman

Contribution ID: **61**

Type: **not specified**

X. C. 3. Open discussion

Tuesday 8 November 2016 14:00 (30 minutes)

Session Classification: X. Essential and Sustainable Infrastructure Needs in Challenging Environments: Moderator: Norman Coleman

Contribution ID: 62

Type: **not specified**

XI. A. 1. Design characteristics for a novel linear accelerator for challenging environments

Tuesday 8 November 2016 15:05 (15 minutes)

Presenter: DEGIOVANNI, Alberto (CERN)

Session Classification: XI. Recommendations from the Workshop and Plans for the Future: Norman Coleman, Manjit Dosanjh and David Pistenmaa

Contribution ID: 63

Type: **not specified**

XI. A. 2. Achieving and sustaining the necessary infrastructure in challenging environments: Can we get by with less?

Tuesday 8 November 2016 15:20 (15 minutes)

Presenter: VIKRAM, Bhadrasain

Session Classification: XI. Recommendations from the Workshop and Plans for the Future: Norman Coleman, Manjit Dosanjh and David Pistenmaa

Contribution ID: 64

Type: **not specified**

XI. A. 3. Estimating the needs and planning for sustainable training of radiotherapy professional and ancillary staff in developing countries

Tuesday 8 November 2016 15:35 (15 minutes)

Presenter: BALOGUN, Onyinye

Session Classification: XI. Recommendations from the Workshop and Plans for the Future: Norman Coleman, Manjit Dosanjh and David Pistenmaa