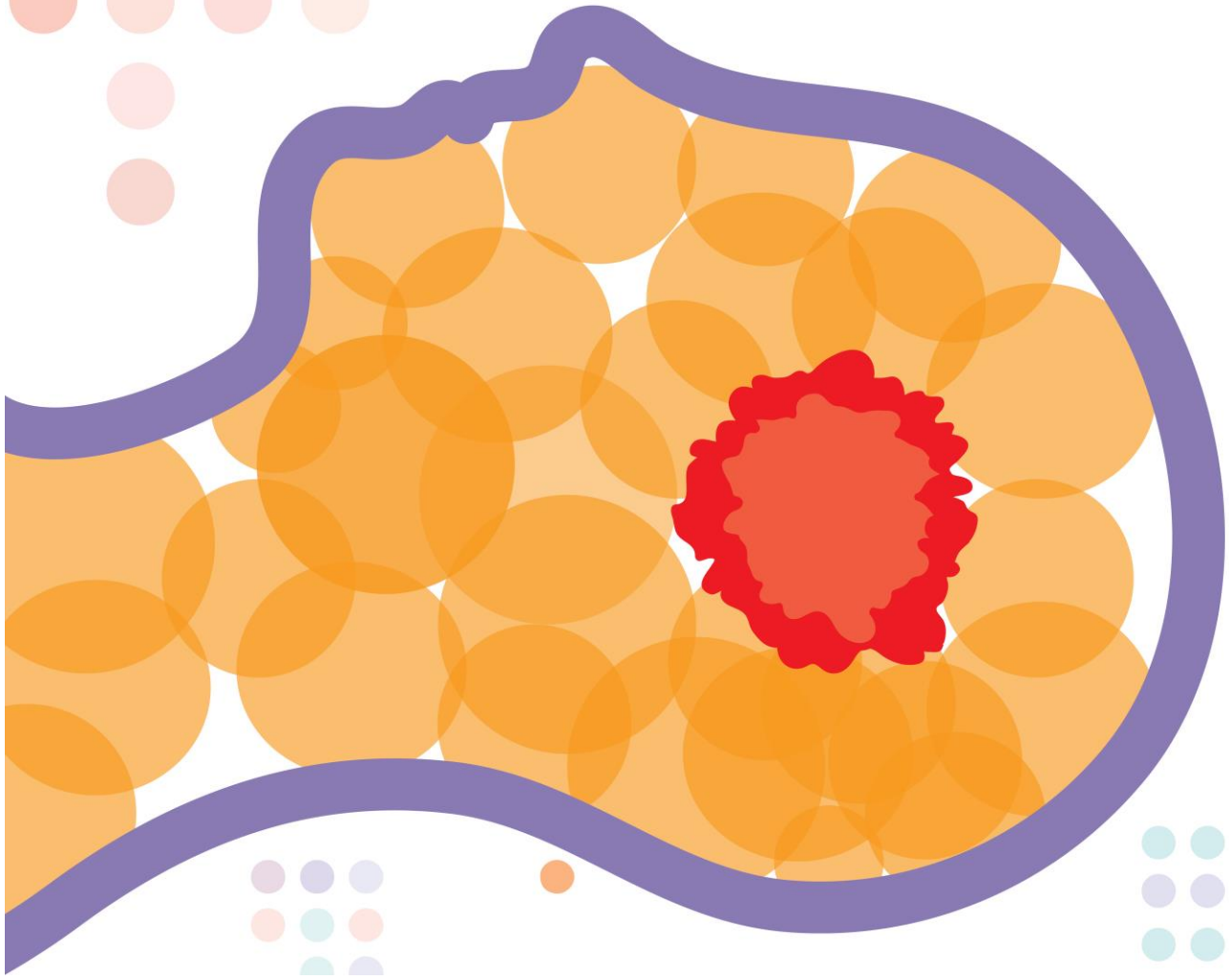

International Conference on

# Advances in Radiation Oncology

#ICARO3

16–19 February 2021

Organized by the

IAEA
International Atomic Energy Agency
*Atoms for Peace and Development*

# International Conference on Advances in Radiation Oncology

# #ICARO3 EDUCATION EDITION - VIRTUAL CONFERENCE

# Live and On-demand 16 – 19 February 2021

## #ICARO3 Overview:

- The ICARO-3 Education Edition seeks to maximise user accessibility during the ongoing COVID-19 global pandemic, by giving attendees (i.e. participants and observers) the flexibility to consume content through **both** *Live Sessions* and *On-demand* materials
- Attendance of ICARO-3 is possible either as:
  - A Participant with full access to the virtual conference platform, must be officially designated and register by sending a Participation Form (Form A) through their national authority (e.g. Ministry of Foreign Affairs, Permanent Mission to the IAEA or National Atomic Energy Authority) to the IAEA
  - An Observer with access to conference related material (e.g. abstracts, presentations, posters) and to other functions within the virtual conference platform. Registration as an observer can be completed by registering directly with the IAEA via this link.
- Certificates of Attendance will be available on request to **both observers and participants**.
- An appropriate number of accredited continuing medical education (CME) credits will be **awarded** ONLY to **participants**. To claim CME credits participants will need to actively engage in the live sessions taking place as per the scheduled programme during the conference days on 16 – 19 February 2021 and answer the respective session evaluations (available once the live sessions have concluded). [1]
- ICARO-3 will feature three E-contouring workshops which will be broadcast on Tuesday 16 February and Wednesday 17 February 2021. The workshops will be run in cooperation with ASTRO and ESTRO and participation in these workshops will be open to all attendees. Registration for access to the e-contouring platform (EduCase) will be open from **18 – 25 January 2021**; further details will be made available on the ICARO-3 homepage

[1] *Note: Participants **will not be able to accumulate multiple credits from sessions taking place in parallel**. As per the rules of EACCME, **CME credits can only be claimed for those sessions (i.e. refresher courses) attended as per the 'live' scheduled programme' - no CME credits can be collected from refresher courses which are attended 'on-demand'***

# #ICARO3 Format

## Live sessions

Live sessions on Tuesday 16 February, Wednesday 17 February and Friday 19 February, will take place at a two specific time set in the programme for the convenience of those attendees in the global east and global west. The live sessions on Thursday 18 February will take place at one specific time and be dedicated to medical physics. Attendees can submit questions and answers in the session chat. Experts will communicate answers to participants through the chats. A session moderator will convey selected questions during the live 'Ask the Experts Session' on Friday, 19 February 2021 at 13:00 (CET).

## Refresher Courses

The ICARO Refresher Courses can be consumed on-demand and will be available for the duration of ICARO-3 from 16 February 2021 until 19 February 2021. Interaction will be possible via the inbuilt messaging system which will be incorporated in the virtual platform.

Those participants wishing to claim CME credits for their completion of the Refresher Courses, can only do so when taking the Refresher Courses at the indicated times on the scheduled programme.

## Oral Presentations and e-Posters

Proffered Papers will be presented as oral presentations, to be broadcast at specific times in the programme. Attendees can submit questions for the presenters in the session chat.

e-Posters and synopses will be available at set times in the scheduled programme and via the Synopses Library on the ICARO-3 conference app for the duration of ICARO-3 from 16 February 2021 until 19 February 2021.

# SCHEDULED TENTATIVE PROGRAMME - SHORT OVERVIEW

International Conference on Advances in Radiation Oncology #ICARO3

16 – 19 February 2021 (Virtual Event)

## Live Sessions:

| Tuesday<br>16 February 2021 | Wednesday<br>17 February 2021 | Thursday<br>18 February 2021 | Friday<br>19 February 2021 |
|---|---|---|---|
| Opening Session<br>0800 – 0830 EAST<br>1530 – 1600 WEST<br>(30 Minutes)<br>Rafael GROSSI<br>Najat MOKHTAR<br>May ABDEL WAHAB | Brachytherapy<br>0745 – 0815 EAST<br>1530 – 1600 WEST<br>(30 Minutes)<br>Christine HAIE-MEDER | Medical Physics sessions: Advanced Techniques and Technologies:<br>0830 -1000<br>(90 Minutes)<br>Chairs: Daniel BERGER &<br>Mauro CARRARA;<br>Speaker:<br>Ferid SHANNOUN & Peter THOMAS<br>Oliver JÄKEL<br>Yolanda PREZADO<br>Geoffrey IBBOTT<br>Robin HILL<br>Laurence Edward COURT | Refresher Courses:<br>Parallel Sessions<br>0800 – 1000<br>(See Parallel Session sheet) |
| The Evolution of ICARO From ICARO 2 to ICARO 3<br>0830 – 0900 EAST<br>1600 – 1630 WEST<br>(30 Minutes)<br>Eduardo ROSENBLATT<br>Geoffrey IBBOTT | Radiobiology<br>0815 – 0900 EAST<br>1600 – 1645 WEST<br>(45 Minutes)<br>Mike JOINER<br>Loredana MARCU | Paper Presentations 1<br>1000 – 1110<br>(70 Minutes)<br>Sonja WEGENER<br>Iqbal AL AMRI<br>Tania Filipa SOBRINHO DOS SANTOS<br>Abdelkader TOUTAOUI<br>Hwee Shin SOH<br>Vibeke HANSEN<br>Andrea MANTUANO | **Radiotherapy in the National Cancer Control Plan**<br>1000 – 1030 EAST<br>1430 – 1500 WEST<br>(30 Minutes)<br>Lisa STEVENS |

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| Tuesday<br>16 February 2021 | Wednesday<br>17 February 2021 | Thursday<br>18 February 2021 | Friday<br>19 February 2021 |
|---|---|---|---|
| Opportunities in addressing Global Cancer Challenges (Panel Discussion)<br>0900 – 1030 EAST<br>1630 – 1800 WEST<br>(90 Minutes)<br>Chair: May ABDEL WAHAB<br>Panellists:<br>HRH PRINCESS Dina MIRED<br>John SUH<br>Rajendra Achyut BADWE<br>Ali LANDMAN<br>Princess Nothemba SIMELELA<br>Sherif ABOUELNAGA<br>Mary GOSPODAROWICZ<br>Gustavo SARRIA | Education and Training<br>0900 – 0930 EAST<br>1645 – 1715 WEST<br>(30 Minutes)<br>Kim BENSTEAD | Poster Viewing Session / Break<br>1120 – 1200<br>(50 Minutes) | QUATRO<br>1030 – 1100 EAST<br>1500 – 1530 WEST<br>(30 Minutes)<br>Stefaan VYNCKIER<br>Aude VAANDERING |
| Technological Gap<br>1030 – 1100 EAST<br>1800 – 1830 WEST<br>(30 Minutes)<br>Michael BARTON<br>Jacob VAN DYK | The RTT Profession<br>0930 – 1000 EAST<br>1715 – 1745 WEST<br>(30 Minutes)<br>Mary COFFEY | Medical Physics sessions: Medical Physics Education:<br>1200 – 1250<br>(50 Minutes)<br>Chair: Debbie VAN DER MERWE<br>Speaker:<br>Giorgia LORETI<br>Geoffrey IBBOTT, Arun CHOUGULE<br>Brendan MCCLEAN | Strategies in Ensuring Continuity of Radiotherapy Services in the Context of COVID-19<br>1100 – 1130 EAST<br>1530 – 1600 WEST<br>(30 Minutes)<br>Matthias GUCKENBERGER |
| Advanced Technologies - IT/AI<br>1100 – 1130 EAST<br>1830 – 1900 WEST<br>(30 Minutes)<br>Ben HEIJMEN | Clinical Research<br>(30 Minutes)<br>1000 – 1030 EAST<br>1745 – 1815 WEST<br>Jai Prakash AGARWAL | Sub Session: Global access to medical physics education: challenges and opportunities<br>1250 – 1350<br>(60 Minutes)<br>Jacob VAN DYK<br>Graciela VELEZ<br>Parminder S. BASRAN | Advanced Technologies - Proton, Ion Beam Therapy<br>1130 – 1200 EAST<br>1600 – 1630 WEST<br>(30 Minutes)<br>Damien WEBER |

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| Tuesday<br>16 February 2021 | Wednesday<br>17 February 2021 | Thursday<br>18 February 2021 | Friday<br>19 February 2021 |
|---|---|---|---|
| | | Giorgia LORETI<br>Daniel VENENCIA | |
| Oral Presentations: Paper Session 1 & 2: Clinical Research & Implementation of New Technologies<br>1130 – 1230<br>(1 Hour)<br>Reena ENGINEER; Petr BULYCHKIN; Kyrhatii TRIKHIRHISTHIT; Semia ZARAA<br><br>Micaela Agustina BERTERO; Anni BORKVEL; Minjmaa MINJGEE; Kennedy LISHIMPI | Health Systems Research<br>1030 – 1100 EAST<br>1815 – 1845 WEST<br>(30 Minutes)<br>Yolande LIEVENS | Paper Presentations 2<br>1350 – 1440<br>(50 Minutes)<br>Sherisse DE FOUR<br>Chi DO DUC<br>Ignatius KOMAKECH<br>Nesrine ELAMRI<br>Milagros GARCIA GUTIERREZ | Telemedicine<br>1200 – 1230 EAST<br>1630 – 1700 WEST<br>(30 Minutes)<br>Iain WARD |
| Refresher Courses: Parallel Sessions<br>1230 – 1430<br>(See Parallel Session sheet) | Paediatric Radiotherapy<br>1100 – 1130 EAST<br>1845 – 1915 WEST<br>(30 Minutes) Ed SMITH | Poster Viewing Session/Break<br>1440 – 1530 | 60 years of the Directory of Radiotherapy Centres (DIRAC)<br>1230 – 1300 EAST<br>1700 – 1730 WEST<br>(30 Minutes) Alfredo POLO |

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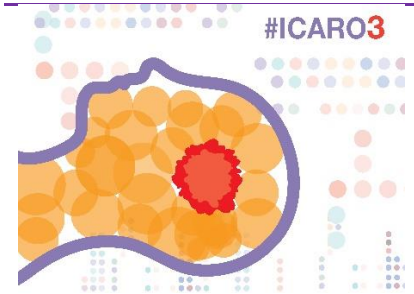
| Tuesday<br>16 February 2021 | Wednesday<br>17 February 2021 | Thursday<br>18 February 2021 | Friday<br>19 February 2021 |
|---|---|---|---|
| E-Contouring Workshop (ASTRO)<br>1430 -1530<br>(Two 30-minute sessions)<br>Billy LOO<br>Mack ROACH III | Oral Presentations: Paper Session 3 & 4: Health Economics and Health Systems Research & Radiobiology<br>1130 – 1230<br>(1 Hour)<br><br>Socheat TOUCH; YI Junlin; Jorge Andres VILLALOBOS-ROSALES; Soehartati A GONDHOWIARDJO; Miriam Joy CALAGUAS; Kizito MUBIRU<br><br>Assya BOUGHALIA; Mitra SAFAVI-NAEINI; Manoor Prakash HANDE; Elena YERMILOVA | Medical Physics sessions: Audits, Quality and Safety:<br>1530 – 1650<br>(80 Minutes)<br>Chairs: Ola HOLMBERG; & Debbie VAN DER MERWE<br>Speaker:<br>Andy NISBET<br>Stephen F KRY<br>Pavel KAZANTSEV<br>Stefaan VYNCKIER<br>Annette WYGODA<br>Ola HOLMBERG | Live session: Q&A: Ask the Experts<br>1300 – 1400 LIVE<br>1730 – 1830 REPEAT<br>(1 Hour) |
| END OF DAY 1 | Refresher Courses: Parallel Sessions<br>1230 – 1430<br>(See Parallel Session sheet) | Paper Presentations 3<br>1650 – 1740<br>(50 Minutes)<br>Petri SIPILA<br>Ilkka JOKELAINEN<br>Alexis DIMITRIADIS<br>Magali EDOUARD<br>Godfrey AZANGWE | Closing Remarks<br>1400 – 1430 EAST<br>1830 – 1900 WEST<br>(30 Minutes) |
|  | E-Contouring Workshop (ESTRO)<br>1430 - 1530<br>(1 Hour)<br>Sarah JEFFERIES | Refresher Courses: Parallel Sessions<br>1800 - 2000<br>(See Parallel Session sheet) | |
| | END OF DAY 2 | END OF DAY 3 | END OF DAY 4<br>CLOSE OF CONFERENCE |

#ICARO3

# REFRESHER COURSES PROGRAMME - SHORT OVERVIEW

International Conference on Advances in Radiation Oncology #ICARO3

16 – 19 February 2021 (Virtual Event)

## Refresher Courses:

On-demand for the duration of ICARO-3[2]

| Advanced Technologies / Beyond 3D - 80 Minutes |
|---|
| 1. Multimodality imaging and deformable image registration (20 minutes) Vincenzo VALENTINI |
| 2. Automated target volume / organs at risk delineation and treatment planning (20 minutes) Vincent GREGOIRE |
| 3. Management of interfraction motion (IGRT, Adaptive RT) (20 minutes) X. Allen LI |
| 4. Advances in dose delivery (MRI linac, transponders, FLASH) (20 minutes) Saiful HUQ |

| Brachytherapy in the real world - 170 Minutes - Chair: Alfredo POLO |
|---|
| 1. Status of Brachytherapy worldwide: a DIRAC study (5 minutes) Alfredo POLO |
| 2. Health Economic Evaluation of Brachytherapy for cancer treatment (15 minutes) Alfredo POLO |
| 3. Technological advances in Brachytherapy -TPS, new sources, new applicators, AI (15 minutes) Mauro CARRARA |
| 4. Comprehensive Quality Management in Brachytherapy (15 Minutes) Daniel BERGER |
| 5. Education and training of New Generations of Brachytherapy Practitioners (20 minutes) Supriya CHOPRA, Mauro CARRARA |
| 6. Omitting brachytherapy in gynaecological cancer is deleterious for your patients (15 minutes) Supriya CHOPRA |
| 7. Cervix cancer as a model for Image Guided Brachytherapy (15 minutes) Umesh MAHANTSHETTY |
| 8. The migration from 2D to 3D and IGBT: implementation challenges (20 minutes) Daniel BERGER, Umesh MAHANTSHETTY |
| 9. Leading the change: opportunities and challenges for brachytherapy in the management of cancer (Panel Discussion) (30 minutes) Chair: Alfredo POLO; Panellists: Umesh MAHANTSHETTY, Supriya CHOPRA, Mauro CARRARA, Daniel BERGER |
| 10. Practical Educational Session (20 Minutes) Daniel BERGER; Umesh MAHANTSHETTY |

| Planning Quality Radiotherapy Services a City Approach - 120 minutes - Chairs: Rolando CAMACHO & Eduardo ZUBIZARRETA |
|---|

[2] CME Credits can only be claimed for participants attending sessions during the stated broadcast times. To claim CME credits participants will need to **actively engage in the live sessions** taking place during the conference days on 16 – 19 February 2021 **and answer the respective session evaluations** (available once the live sessions have concluded).

1. C/Can model: Planning quality radiotherapy services (15 minutes) Diogo NEVES
2. Demand and supply analysis: a city framework (20 minutes) Rodolfo ALFONSO
3. Building a successful public-private partnership in the health sector: key elements (20 minutes) Dhawal JHAMB
4. A practical example: Yangon City, Myanmar (15 minutes) Thet KO AUNG; KHIN CHO Win

## Educational Milestones in the Profession of RTT - 90 Minutes – Chair: Michelle Leech

1. Current Status of RTT education globally (15 minutes) Michelle LEECH
2. The advancing and changing role of the RTT (15 minutes) Aidan LEONG
3. Where are we going?: Future Directions for the RTT profession (15 minutes) Mary COFFEY
4. Panel Discussion: The current status of RT education in their region and opinions on the challenges and opportunities for RTTs in the coming decade (40 minutes) Chair: Michelle LEECH; Panellists: Gurvinder Singh WADHAWAN; Samuel OPOKU; Colette DIJCKS; John RYAN; Mary COFFEY, Aidan LEONG

## Expanding Access to Radiotherapy - 120 minutes - Chair: Eduardo ZUBIZARRETA

1. Global efforts (20 minutes) Mary GOSPODAROWICZ
2. Challenges (20 minutes) Surbhi GROVER
3. Translating incidence into needs (20 minutes) Michael BARTON
4. Sustainability and access (20 minutes) Alfredo POLO
5. Resources and costs (20 minutes) Eduardo ZUBIZARRETA
6. Investment framework (20 minutes) Danielle RODIN

## Paediatric Radiation Oncology - 120 minutes - Chair: Sahaja ACHARYA

1. Global Partnerships (15 minutes) Paola FRIEDRICH, Catherine G. LAM
2. Delivering Paediatric Radiotherapy within Multidisciplinary team care (15 minutes) Karen MARCUS
3. Key learning points in Paediatric Radiotherapy: CNS (25 minutes) Sahaja ACHARYA
4. Key learning points in Paediatric Radiotherapy: Non-CNS (25 minutes) Susan HINIKER
5. Management of late effects and follow-up of the child into adulthood (15 minutes) Stephanie PERKINS
6. Panel discussion: Training in Paediatric Radiotherapy (20 minutes) Chair: Kirsten HOPKINS; Panellists: Verity AHERN; Rosangela CORREA-VILLAR; Mohammed ZAGHLOUL; Wondemagegnhu TIGENEH

## Proton Radiotherapy - 120 Minutes - Chair: Karen KIRKBY

1. Does it work: Developing and implementing clinical trials of PBT (20 minutes) Cai GRAU
2. Medical Physics Issues in Proton Therapy: Changing from 2 phases to single phase simultaneous integrated boost (to better use the optimiser) and use of EUD for plan assessment (20 minutes) Matthew CLARKE
3. The patient-centred PBT pathway (15 minutes) Vicky HUGHES
4. Image Guidance in proton therapy (15 minutes) Katja LANGEN
5. Dose Accumulation in Proton Therapy (15 minutes) Antony J LOMAX
6. FLASH proton therapy? (15 minutes) Jack AYLWARD
7. Paediatric Proton Therapy (20 minutes) Tom MERCHANT

## Radiation Oncology Education in the Interconnected World - 120 Minutes - Chairs: Sandra TURNER & Jesper ERIKSEN

1. Global health competencies in radiation oncology education (15 minutes) Meredith GIULIANI
2. Integrating radiation oncology education and research (15 minutes) Miriam MUTEBI
3. Interprofessional education (15 minutes) Michelle LEECH
4. Strengthening Networks in Worldwide Radiation Oncology Education:
   - Perspectives: HIC (15 minutes) Daniel GOLDEN
   - Perspectives: LMIC (15 minutes) Lotfi KOCHBATI
   - Panel Discussion (45 minutes) Chair: Sandra TURNER; Panellists: Jesper Grau ERIKSEN; Daniel GOLDEN; Lotfi KOCHBATI

## Radiobiology - 90 Minutes - Chair: Mike JOINER

1. Radiobiology of high dose per fraction (30 minutes) Mike JOINER
2. Role of radiobiology in Spatial Fractionated Radiation Therapy and FLASH (25 minutes) Jolyon HENDRY
3. Radiobiological advances in Radiation Medicine (25 minutes) Marjan BOERMA
4. Personalized Radiotherapy: From bench to bedside (25 minutes) Loredana MARCU

## Technological developments in radiation therapy practice - 90 Minutes - Chair: Michelle LEECH

1. A changed set up?: Implementation of surface guided radiation therapy (15 minutes) Kenton THOMPSON
2. Advancing and changing practices: bringing the MRI-linear accelerator into clinical reality (15 minutes) Veronica POLLUTRI
3. Proton therapy- new directions in treatment delivery for RTTs. (15 minutes) Sharon WONG
4. Panel Discussion: The impact of new technologies on the development of the RTT profession and on the changing role of the RTT in meeting the challenges of rapid technological developments. (40 minutes) Chair: Michelle LEECH Panellists: Helen MCNAIR; Colleen DICKIE; Nicola BIZZOCHI; Veronica POLLUTRI; Sharon WONG

# SCHEDULED TENTATIVE PROGRAMME - DETAILED VIEW

International Conference on Advances in Radiation Oncology #ICARO3
16 – 19 February 2021 (Virtual Event)

## Live Sessions:

TUESDAY, 16 FEBRUARY 2021

| Live Broadcast times (CET/UTC +1) | Session Title | Speaker | Affiliation | Designating Member State/ Organization | Title of Presentation | Description |
|---|---|---|---|---|---|---|
| 0800 – 0830 EAST<br>1530 – 1600 WEST | **Opening Session** (30 Minutes) | Rafael GROSSI<br><br>Najat MOKHTAR<br><br>May ABDEL WAHAB | Director General, IAEA<br><br>Deputy Director General, Department of Nuclear Sciences and Applications, IAEA<br>Director, Division of Human Health | International Atomic Energy Agency (IAEA)<br>International Atomic Energy Agency (IAEA)<br>International Atomic Energy Agency (IAEA) | Welcome Remarks | |
| | Keynote lectures: | | | | | |
| 0830 – 0900 EAST<br>1600 – 1630 WEST | **From ICARO 2 to ICARO 3** | Eduardo ROSENBLATT | Private Consultant | Spain | From ICARO 2 to ICARO 3: Radiation Oncology | This session will: Describe the developments and challenges in radiation oncology and medical |

| Live Broadcast times (CET/UTC +1) | Session Title | Speaker | Affiliation | Designating Member State/ Organization | Title of Presentation | Description |
|---|---|---|---|---|---|---|
| | (30 Minutes) | Geoffrey IBBOTT | International Organization for Medical Physics (IOMP); University of Texas MD Anderson Cancer Center | IOMP/United States | From ICARO 2 to ICARO 3: Physics | physics in the last 5 years since ICARO 2 |
| 0900 – 1030 EAST<br>1630 – 1800 WEST | **Opportunities in addressing Global Cancer Challenges Panel Discussion**<br>(90 Minutes) | May ABDEL WAHAB | Director, Division of Human Health, IAEA | International Atomic Energy Agency (IAEA) | | This session will: Discuss the challenges in the access and implementation of radiation oncology globally; and Identify innovations and solutions to address challenges |
| | | John SUH | Radiation Oncology Department, the Cleveland Clinic | United States | Global Network Approach | |
| | | Rajendra Achyut BADWE | Director of the Tata Memorial Centre | India | Hub and Spoke Model | To provide a better understanding of the Hub and spoke model as an alternative model for the development of a Cancer network |
| | | Ali LANDMAN | Senior Editor, Lancet Oncology | United Kingdom | Oncology Commissions and Impact in Global Cancer | To Understand the role of the Lancet Commissions and its role in facing global challenges in cancer care |

| Live Broadcast times (CET/UTC +1) | Session Title | Speaker | Affiliation | Designating Member State/ Organization | Title of Presentation | Description |
|---|---|---|---|---|---|---|
| | | Princess Nothemba SIMELELA | Assistant Director-General, Special Advisor to the Director-General, Strategic Priorities, World Health Organization (WHO) | World Health Organization (WHO) | Cervical Cancer Elimination Strategy | To understand the importance of addressing the Cancer Challenges with a multi-sectoral global perspective showing the example of this current initiative, and touching on the inclusion of Radiotherapy in the initiative |
| | | Sherif ABOUELNAGA | Pediatric Oncology, National Cancer Institute – Cairo University | Egypt | Non-traditional solutions for Setting up an Oncology Dept | To understand challenges and non traditional opportunities in the development of a cancer centre in Low Middle Income Countries |
| | | HRH PRINCESS Dina MIRED | The King Hussein Cancer Foundation, Jordan<br>President 2018-2020 Union for International Cancer Control (UICC) | Jordan | Essential steps to successful development of a cancer centre | |
| | | Mary GOSPODAROWICZ | The Princess Margaret Cancer Centre, Toronto | Canada | Developing and managing of a Cancer centre | To provide an overview the different challenges in cancer care in a High Income Country setting |
| | | Gustavo SARRIA | Instituto Peruano de Enfermedades Neoplasicas | Peru | Experience and Challenges | To understand challenges and opportunities in the development |

| Live Broadcast times (CET/UTC +1) | Session Title | Speaker | Affiliation | Designating Member State/ Organization | Title of Presentation | Description |
|---|---|---|---|---|---|---|
| | | | | | | of a cancer centre in Low Middle Income Countries |
| 1030 – 1100 EAST<br>1800 – 1830 WEST | **Technological Gap** (30 Minutes) | Michael BARTON | University of New South Wales, Australia | Australia | Technological Gap: Clinical Perspective | This session will: Discuss the requirements to ensure a safe and effective transition to new technologies |
| | | Jacob VAN DYK | The University of Western Ontario, Canada; Medical Physics for World Benefit (MPWB) | Canada/MPWB | Technological Gap: Physics Perspective | |
| 1100 – 1130 EAST<br>1830 – 1900 WEST | **Advanced Technologies - IT/AI** (30 Minutes) | Ben HEIJMEN | European Society for Radiotherapy & Oncology (ESTRO); Erasmus University Medical Center Rotterdam (Erasmus MC) – Cancer Institute | ESTRO | Artificial Intelligence (AI) in Radiotherapy | This session will: Discuss recent advances in artificial intelligence / machine learning and their applications in radiation oncology; and<br>Discuss challenges and considerations in the implementation |
| | Paper Session: | | | | | |
| 1130 – 1230 | **Oral Presentations** (1 Hour) | | | | | Contributors will present proffered papers, and take part in a Q&A through the chat function in the ICARO-3 conference app |

| Live Broadcast times (CET/UTC +1) | Session Title | Speaker | Affiliation | Designating Member State/ Organization | Title of Presentation | Description |
|---|---|---|---|---|---|---|
| | **Paper Session 1: Clinical Research** | Reena ENGINEER | Tata Memorial Centre, Mumbai | India | Is Watch and wait approach feasible for patients with complete response post neoadjuvant therapy in Low Middle Income Countries? | |
| | | Petr BULYCHKIN | N.N. Blokhin National Medical Research Center of Oncology, Ministry of Health | Russian Federation | Modern possibilities of nuclear medicine in the treatment of patients with recurrence prostate cancer after radical prostatectomy | |
| | | Kyrhatii TRIKHIRHISTHIT | Sawanpracharak hospital, Collaborative Project to Increase Production of Rural Doctor (CPIRD) Medical Education Center affiliated to Mahidol University, Nakhonsawan, | Thailand | Survival benefits of adding palliative whole brain radiotherapy in non-small cell lung cancer with brain metastases unsuitable for resection or radiosurgery: A clinical prediction rule | |
| | | Semia ZARAA | Salah azaiz Institute, Department of Radiotherapy | Tunisia | EVOLUTION AND PROGNOSIS OF JUVENILE NASOPHARYNGEAL CARCINOMA: results from of a study on 68 children in Salah Azaiz Institute in Tunisia | |

| Live Broadcast times (CET/UTC +1) | Session Title | Speaker | Affiliation | Designating Member State/ Organization | Title of Presentation | Description |
|---|---|---|---|---|---|---|
| | **Paper Session 2: Implementation of New Technologies** | Micaela Agustina BERTERO | Leben Salud | Argentina | Optimization parameters in bladder and rectum for gynecologic cancer treatment with VMAT Technique through ProKnow platform | |
| | | Anni BORKVEL | NEMC | Estonia | Evaluation of artificial intelligence based contouring tools in prostate cancer radiation therapy planning | |
| | | Minjmaa MINJGEE | National Cancer Center of Mongolia | Mongolia | Current opportunities and challenges in a period of 2D to 3D transition in Radiation therapy in Mongolia | |
| | | Kennedy LISHIMPI | Cancer Diseases Hospital - Radiation Oncology | Zambia | Implementing compensator IMRT using Low Cost Effective Solution - A Zambian Experience | |
| | **Refresher Courses:** | | | | | |
| 1230 – 1430 | **Parallel Sessions** (See Parallel Session sheet) | | | | | |
| | **Workshop:** | | | | | |

| Live Broadcast times (CET/UTC +1) | Session Title | Speaker | Affiliation | Designating Member State/ Organization | Title of Presentation | Description |
|---|---|---|---|---|---|---|
| 1430 -1530 | **E-Contouring Workshop (ASTRO)** (Two 30-minute sessions) | Billy LOO | Stanford University; American Society for Radiation Oncology (ASTRO) | United States | SABR for Lung Cancer | These sessions will: Describe the clinical and anatomical rationale for target volume and organs at risk delineation; Discuss the common pitfalls in delineation; Demonstrate the accurate delineation of target volumes and organs at risk. |
| | | Mack ROACH III | UCSF Helen Diller Family Comprehensive Cancer Center; American Society for Radiation Oncology (ASTRO) | United States | Prostate Cancer | |
| END OF DAY 1 | | | | | | |

WEDNESDAY, 17 FEBRUARY 2021

| Live Broadcast times (CET/UTC +1) | Session Title | Speaker | Affiliation | Designating Member State/ Organization | Title of Presentation | Description |
|---|---|---|---|---|---|---|
| | | | | | | |
| | Keynote lectures: | | | | | |
| 0745 – 0815 EAST<br>1530 – 1600 WEST | **Brachytherapy**<br>(30 Minutes) | Christine HAIE-MEDER | Institut de Cancérologie Gustave Roussy | France | Rationale for the migration from 2D to 3D brachytherapy | This session will: Present an overview of the history of brachytherapy, the main indications and available technologies, and the best practices for the implementation of brachytherapy in real life. |
| 0815 – 0900 EAST<br>1600 – 1645 WEST | **Radiobiology**<br>(45 Minutes) | Mike JOINER | Wayne State University School of Medicine, Michigan | United States | Radiobiology of High dose per fraction | This session will: Present an overview of the contemporary radiobiology, the main indications and available technologies, and the best practices for the implementation of radiobiological findings in radiation oncology. |
| | | Loredana MARCU | University of Oradeaa, Romania, University of South Australia, Australia | Romania/IOMP | Recent developments in Radiobiology | |
| 0900 – 0930 EAST<br>1645 – 1715 WEST | **Education and Training**<br>(30 Minutes) | Kim BENSTEAD | Gloucestershire Hospitals NHS Foundation Trust; Chair ESTRO | United Kingdom | Competency Based Education in Radiation Oncology: Global | This session will: Discuss the recent developments and challenges in the assessment and certification aspect of radiation |

| Live Broadcast times (CET/UTC +1) | Session Title | Speaker | Affiliation | Designating Member State/ Organization | Title of Presentation | Description |
|---|---|---|---|---|---|---|
| | | | Curriculum Committee | | Perspectives on the Assessment of Learning | oncology education globally. The goal is to disseminate best practices and invite discussion towards assessment of learning at the global level. |
| 0930 – 1000 EAST<br>1715 – 1745 WEST | **The RTT Profession**<br>(30 Minutes) | Mary COFFEY | School of Medicine - Trinity College Dublin | Ireland | The RTT profession | This session will: Identify the need to advance the education of radiation therapists worldwide; and,<br>Discuss challenges and solutions |
| 1000 – 1030 EAST<br>1745 – 1815 WEST | **Clinical Research**<br>(30 Minutes) | Jai Prakash AGARWAL | Tata Memorial Hospital | India | Clinical Research | This session will: Describe the challenges and solutions in ensuring equity in radiation oncology research; and,<br>Identify solutions to increase participation of LMICs in clinical research. |
| 1030 – 1100 EAST<br>1815 – 1845 WEST | **Health Systems Research**<br>(30 Minutes) | Yolande LIEVENS | University Hospital Ghent | Belgium | Health Systems Research | This session will: Describe the concept and application of health systems research; and<br>Discuss the importance of health systems research in addressing the issue of access and sustainability. |
| 1100 – 1130 EAST<br>1845 – 1915 WEST | **Paediatric Radiotherapy**<br>(30 Minutes) | Ed SMITH | The Christie NHS Foundation Trust | United Kingdom | Radiotherapy in Teenagers and Young Adults with cancer: Providing Care and Improving Outcomes | This session will: Discuss the challenges in the management of teenage and young adults with cancer; and |

| Live Broadcast times (CET/UTC +1) | Session Title | Speaker | Affiliation | Designating Member State/ Organization | Title of Presentation | Description |
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| | | | | | | Identify directions to improve treatment outcomes with radiotherapy |
| | Paper Session: | | | | | |
| 1130 – 1230 | **Oral Presentations** (1 Hour) **Paper Session 3: Health Economics and Health Systems Research** | Socheat TOUCH | Khmer Soviet Friendship Hospital-University of Health Sciences | Cambodia | Revitalizing and strengthen the capacity of cancer management in Cambodia: Past-Present and future involvement of multi-stakeholders. | |
| | | YI Junlin | National Cancer Center/Cancer Hospital, Chinese Academy of Medical Sciences | China | The basic situation of radiotherapy in mainland China ： a national survey in 2019 | |
| | | Jorge Andres VILLALOBOS-ROSALES | CCSS-HSJD / UCR / ICAP | Costa Rica | Competences of Medical Dosimetrists and Radiation Therapy Technologists working in a Costa Rican Radiotherapy Department: A benchmarking approach to the recommended ESTRO Core Curriculum using a Training/Competency Matrix Abstract | |
| | | Soehartati A GONDHOWIARDJO | Faculty of Medicine, Universitas | Indonesia | Closing the Radiotherapy Gap in Indonesia: Reflection | |

| Live Broadcast times (CET/UTC +1) | Session Title | Speaker | Affiliation | Designating Member State/ Organization | Title of Presentation | Description |
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| | | | Indonesia – Department of Radiation Oncology, Dr. Cipto Mangunkusumo National General Hospital – Jakarta | | on National Roadmap Program | |
| | | Kizito MUBIRU | Kyambogo University | Uganda | Weighted Goal Programming Approach for Solving Budgetary Radiation Therapy Treatment | |
| | **Paper Session 4: Radiobiology** | Assya BOUGHALIA | Medical Physics Department, Nucleaire Research of Algiers | Algeria | NTCP and estimation of secondary cancer risk in Modulated Arc Therapy for prostate carcinoma using in-house software. | |
| | | Mitra SAFAVI-NAEINI | Australian Nuclear Science and Technology, ANSTO | Australia | Neutron Capture Enhanced Particle Therapy (NCEPT): In vitro proof of concept | |
| | | Manoor Prakash HANDE | National University of Singapore | Singapore | Mechanism-Based Combination Therapy in Cancer: Studies on Cancer Cells | |
| | | Elena YERMILOVA | Central Military Hospital | Ukraine | Concomitant boost in preoperative irradiation of rectal cancer | |

| Live Broadcast times (CET/UTC +1) | Session Title | Speaker | Affiliation | Designating Member State/ Organization | Title of Presentation | Description |
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| | **Refresher Courses:** | | | | | |
| 1230 – 1430 | **Parallel Sessions** (See Parallel Session sheet) | | | | | |
| | **Workshop:** | | | | | |
| 1430 -1530 | **E-Contouring Workshop (ESTRO)** (1 Hour) | Sarah JEFFERIES | Addenbrooke's Hospital, Cambridge University Hospitals NHS Foundation Trust; European Society for Radiotherapy & Oncology (ESTRO) | United Kingdom | CNS E-Contouring Workshop | These sessions will: Describe the clinical and anatomical rationale for target volume and organs at risk delineation;<br>Discuss the common pitfalls in delineation;<br>Demonstrate the accurate delineation of target volumes and organs at risk. |
| END OF DAY 2 | | | | | | |

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## THURSDAY, 18 FEBRUARY 2021

| **Medical Physics: Advanced Techniques and Technologies -** 0830 -1120 (**170 Minutes**)<br>Chairs: Daniel BERGER & Mauro CARRARA; Dosimetry and Medical Radiation Physics section, Division of Human Health, International Atomic Energy Agency (IAEA) | | | | |
|---|---|---|---|---|
| Live Broadcast times (CET/UTC +1) | Title | Speaker | Affiliation | Designating Member State/ Organization |
| 0830 – 0850 | 1. The UNSCEAR 2020 report on medical exposure: approach, trends and challenges in the field of radiation therapy | 1. Ferid SHANNOUN | United Nationas Scientific Committee on the Effects of Atomic Radiation (UNSCEAR) | United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR) |
| | | 1. Peter THOMAS | Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) | Australia |
| 0850 – 0910 | 2. Prescribing, Recording and Reporting Proton and Light Ion Beam Therapy (ICRU 78 and 93) | 2. Oliver JAEKEL | German Cancer Research Center, Heidelberg; International Commission on Radiation Units and Measurements (ICRU) | ICRU/ Germany |
| 0910 - 0920 | 3. Spatially fractionated radiation therapy: from photons to charged particles | 3. Yolanda PREZADO | European Federation of Organisations for Medical Physics (EFOMP); Research Center-Orsay, Institut Curie | EFOMP/France |
| 0920 - 0940 | 4. Out of field doses | 4. Geoffrey IBBOTT | International Organization for Medical Physics (IOMP); University of Texas MD Anderson Cancer Center | IOMP/ United States |
| 0940 – 0950 | 5. kV therapy dosimetry: updates and challenges | 5. Robin HILL | Chris O'Brien Lifehouse, New South Wales | Australia |

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|---|---|---|---|---|
| 0950 – 1000 | 6. Radiation Planning Assistant: Automated contouring and treatment planning | 6. Laurence COURT | M.D. Anderson Cancer Center (MDACC)M.D. Anderson Cancer Center (MDACC) | United States |

| Paper Session: Medical Physics Paper Session 1: Advanced Techniques and Technologies | | | | |
|---|---|---|---|---|
| Live Broadcast times (CET/UTC +1) | Presentation Title | Speaker | Affiliation | Designating Member State/ Organization |
| 1000 - 1010 | 1. Effect of detector choice for commissioning measurements propagated trough beam modelling to final dose calculation | Sonja WEGENER | University of Wuerzburg, Radiation Oncology | Germany |
| 1010 - 1020 | 2. Accuracy of an Eclipse treatment planning system for SRS | Iqbal AL AMRI | Royal hospital | Oman |
| 1020 - 1030 | 3. Characterization of helical tomotherapy plans complexity | Tania SANTOS | University of Coimbra \| IPOCFG,E.P.E. | Portugal |
| 1030 - 1040 | 4. Retrospective evaluation of portal dosimetry pre-treatment quality assurance for volumetric-modulated arc therapy (VMAT) and stereotactic radiotherapy (SRT) plans | Abdelkader TOUTAOUI | Hôpital Chahids Mahmoudi, Tizi Ouzou | Algeria |
| 1040 - 1050 | 5. A novel quantitative metrics for assessing IMRT plan complexity: A virtual phantom study | Hwee Shin SOH | Ministry of Health Malaysia | Malaysia |
| 1050 - 1100 | 6. Clinical implementation of the MRLinac in Odense, Denmark | Vibeke Nordmark HANSEN | Laboratory of Radiation Physics, Odense University Hospital | Denmark |

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| 1100 – 1110 | 7. Fricke Dosimetry for Blood Irradiators | Andrea MANTUANO | Rio de Janeiro State University (UERJ) | Brazil |
| BREAK 40 Minutes POSTER VIEWING SESSION | | | | |

| **Medical Physics: Education -** 1200 -1430 (**150 Minutes**)<br>Chairs: Debbie VAN DER MERWE; Section Head, Dosimetry and Medical Radiation Physics section, Division of Human Health, International Atomic Energy Agency (IAEA) | | | | |
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| Live Broadcast times (CET/UTC +1) | Presentation Title | Speaker | Affiliation | Designating Member State/ Organization |
| 1200 - 1220 | 1. IAEA Activities in Support of Education and Recognition in Medical | 1. Giorgia LORETI | Dosimetry and Medical Radiation Physics (DMRP) section, Division of Human Health | International Atomic Energy Agency (IAEA) |
| 1220-1240 | 2. IOMP activities in medical physics education and training | 2. Geoffrey IBBOTT | International Organization for Medical Physics (IOMP); University of Texas MD Anderson Cancer Center | IOMP/ United States |
| 1240 - 1250 | 3. EFOMP activities in education and training of medical physicists in Europe | 3. Brendan MCCLEAN | European Federation of Organisations For Medical Physics (EFOMP); St Luke's Radiation Oncology Network | EFOMP/ Ireland |
| Sub-Session: Medical Physics Education; Global Access to Medical Physics: Challenges and Opportunities | | | | |
| Live Broadcast times (CET/UTC +1) | Presentation Title | Speaker | Affiliation | Designating Member State/ Organization |

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| –1250 - 1300 | 1. Virtual mentoring in global medical physics education and training | 1. Jacob VAN DYK | The University of Western Ontario, Canada;<br>Medical Physics for World Benefit (MPWB) | MPWB/ Canada |
| 1300 - 1310 | 2. Challenges in establishing a clinical training programme for MP | 2. Graciela VELEZ | Dosimetry and Medical Radiation Physics (DMRP) section, Division of Human Health | International Atomic Energy Agency (IAEA) |
| 1310-1320 | 3. The "Open Syllabus" project – improving global access to radiation oncology medical physicist residency training content | 3. Parminder S. BASRAN | Medical Physics for World Benefit (MPWB) | Medical Physics for World Benefit (MPWB) / United States |
| 1320 - 1330 | 4. Monitoring and Evaluation of IAEA e-learning Courses in Medical Physics | 4. Giorgia LORETI | Dosimetry and Medical Radiation Physics (DMRP) section, Division of Human Health | International Atomic Energy Agency (IAEA) |
| 1330 - 1340 | 5. Experience as a remote supervisor under the IAEA Doctoral CRP Programme | 5. Daniel VENENCIA | Instituto Zunino- Fundación Marie Curie | Argentina |

| Paper Session: Medical Physics Paper Session 2: Education | | | | |
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| Live Broadcast times (CET/UTC +1) | Presentation Title | Speaker | Affiliation | Designating Member State/ Organization |
| 1350 – 1400 | 1. Volumetric Modulated Arc Therapy (VMAT): The gold standard for the present and future of radiotherapy? | Sherisse DE FOUR | St. James Medical Complex | Trinidad and Tobago |
| 1400 – 1410 | 2. A study on the determination of relative output factors for very small fields in stereotactic radiosurgery | Chi DO DUC | Central Military Hospital, No.1 | Vietnam |

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| 1410 - 1420 | 3. Establishment of an Incident reporting and learning System as a tool for Quality Management in Uganda's radiotherapy services: A case of the low resource setting | Ignatius KOMAKECH | Uganda Cancer Institute | Uganda |
| 1420 - 1430 | 4. Evaluation of positioning and dosimetry uncertainties in patients treated with intensity modulation radiotherapy (IMRT) for nasopharyngeal cancers in Tunisia | Nesrine ELAMRI | University Tunis El Manar I | Tunisia |
| 1430 - 1440 | 5. Determination and comparison of output factors in small field for field square and rectangular field with 5 detectors for For 6 Mv. | Milagros GARCIA GUTIERREZ | Red Auna - Clinica Delgado | Peru |
| BREAK 50 Minutes POSTER VIEWING SESSION | | | | |

| Medical Physics: Audits, Quality and Safety - 1530 -1740 (130 Minutes)<br>Chairs: Chairs: Ola HOLMBERG ( Department of Nuclear Safety, Division of Radiation, Transport and Waste Safety, Unit Head (Radiation Protection of Patients Unit) & Debbie VAN DER MERWE; Section Head, Dosimetry and Medical Radiation Physics section, Division of Human Health: International Atomic Energy Agency (IAEA) | | | | |
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| Live Broadcast times (CET/UTC +1) | Presentation Title | Speaker | Affiliation | Designating Member State/ Organization |
| 1530 - 1545 | 1. What is new in radiotherapy medical physics auditing? | 1. Andy NISBET | University College London | United Kingdom |
| 1545 - 1605 | 2. Enhancing quality in radiotherapy through dosimetry audits (the IROC experience) | 2. Stephen KRY | The Global Health Group (GHG)/ | The Global Health Group (GHG)/ United States |

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| | | | M.D. Anderson Cancer Center (MDACC)M.D. Anderson Cancer Center (MDACC) | |
| 1605 - 1620 | 3. IAEA/WHO dosimetry audits: present and future | 3. Pavel KAZANTSEV | Dosimetry and Medical Radiation Physics (DMRP) section, Division of Human Health | International Atomic Energy Agency (IAEA) |
| 1620 - 1630 | 4. Experience and skills for medical physics auditing under the IAEA QUATRO activity | 4. Stefaan Vynckier | UCL, Université catholique de Louvain, Imagerie Médicale, Radiothérapie et Oncologie (MIRO) | Belgium |
| 1630 - 1640 | 5. Designing a framework for improving Radiotherapy Safety and Quality | 5. Annette WYGODA | Quality and Safety of Radiotherapy Treatments, Radiation Control Unit, Ministry of Health - Israel | Israel |
| 1640 - 1650 | 6. Enhancing safety in radiotherapy: the IAEA Safety Standards for Medical Uses | 6. Ola HOLMBERG | Department of Nuclear Safety, Division of Radiation, Transport and Waste Safety, Unit Head (Radiation Protection of Patients Unit) | International Atomic Energy Agency (IAEA) |

| Paper Session: Medical Physics Paper Session 3: Audits, Quality and Safety | | | | |
|---|---|---|---|---|
| Live Broadcast times (CET/UTC +1) | Presentation Title | Speaker | Affiliation | Designating Member State/ Organization |
| 1650 – 1700 | 1. Dose verification from imaging to delivery during site visits in radiotherapy | Petri SIPILÄ | Radiation and Nuclear Safety Authority (STUK) | Finland |
| 1700 - 1710 | 2. Small field absorbed dose to water determinations in LINAC MV photon beams during site visit authority control of radiotherapy | Ilkka JOKELAINEN | Radiation and Nuclear Safety Authority (STUK) | Finland |
| 1710 - 1720 | 3. Introduction of the IAEA Electron Beam Dosimetry Audit Service | Alexis DIMITRIADIS | Dosimetry and Medical Radiation Physics (DMRP) section, Division of Human Health | International Atomic Energy Agency (IAEA) |

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| 1720 - 1730 | 4. Following up on radiotherapy dosimetry audit discrepancies (2018-2020): the IAEA experience | Godfrey AZANGWE | Dosimetry and Medical Radiation Physics (DMRP) section, Division of Human Health | International Atomic Energy Agency (IAEA) | |
| 1730 - 1740 | 5. Medical physics outsourcing in radiotherapy in France: services, practices, limits and points of vigilance | Magali EDOUARD | Institut de Radioprotection et de Sûreté Nucléaire, Fontenay-aux-Roses (IRSN) | France | |
| POSTER VIEWING SESSION | | | | | |
| | **Refresher Courses:** | | | | |
| 1740 – 2000 | **Parallel Sessions** (See Parallel Session sheet) | | | | |
| END OF DAY 3 | | | | | |

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## FRIDAY, 18 FEBRUARY 2021

| Live Broadcast times (CET/UTC +1) | Session Title | Speaker | Affiliation | Designating Member State/ Organization | Title of Presentation | Description |
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| | **Refresher Courses:** | | | | | |
| 0800 – 1000 | **Parallel Sessions** (See Parallel Session sheet) | | | | | |
| | Keynote lectures: | | | | | |
| 1000 – 1030 EAST<br>1430 – 1500 WEST | **Radiotherapy in the National Cancer Control Plan** (30 Minutes) | Lisa STEVENS | Director, Programme of Action for Cancer Therapy (PACT) | International Atomic Energy Agency (IAEA) | Radiotherapy in the National Cancer Control Plan | |
| 1030 – 1100 EAST<br>1500 – 1530 WEST | **QUATRO** (30 Minutes) | Stefaan VYNCKIER | Cliniques Universitaires St. Luc; Université Catholique de Louvain | Belgium | The IAEA Quality Assurance Team for Radiation Oncology | This session will: Contribute to the understanding of the role of independent external audits which are a necessary part of a comprehensive quality assurance (QA) programme in radiation oncology. A comprehensive audit of a radiotherapy programme reviews and evaluates the quality of all the elements involved in |

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| | | | | | | radiation therapy, including staff, equipment and procedures, patient protection and safety, and, overall performance of the radiotherapy department, as well as its interaction with external service providers. Possible gaps in technology, human resources and procedures will be identified so that the institutions audited will be able to document areas for improvement. |
| | **QUATRO** | Aude VAANDERING | Cliniques Universitaires St. Luc; Université Catholique de Louvain | Belgium | Building National Quality Audit Programme for Radiotherapy | This session will: Describe the implementation of the IAEA QUATRO at the national level, with Belgium as a model. |
| 1100 – 1130 EAST<br>1530 – 1600 WEST | **Strategies in Ensuring Continuity of Radiotherapy Services in the Context of COVID-19**<br>(30 Minutes) | Matthias GUCKENBERGER | European Society for Radiotherapy & Oncology (ESTRO); Universität Zürich | ESTRO | Strategies in Ensuring Continuity of Radiotherapy Services in the Context of COVID-19 | Discuss hypofractionation as an example of COVID-19 impact on radiotherapy practice |
| 1130 – 1200 EAST<br>1600 – 1630 WEST | **Advanced Technologies - Proton, Ion Beam Therapy**<br>(30 Minutes) | Damien WEBER | Paul Scherrer Institute (PSI) Centre for Proton Therapy (CPT) | Switzerland | 'Protons: Truth or Lies' | Discuss the concept and limits of proton therapy |
| 1200 – 1230 EAST<br>1630 – 1700 WEST | **Telemedicine**<br>(30 Minutes) | Ian WARD | Canterbury Regional Cancer and Haematology Service, Christchurch Hospital | New Zealand | Telemedicine in Radiation Oncology | This session will: Discuss the scope of telemedicine in radiotherapy; and<br>Discuss the feasibility of telemedicine in the field of |

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| 1230 – 1300 EAST<br>1700 – 1730 WEST | **60 years of the Directory of Radiotherapy Centres (DIRAC)**<br>(30 Minutes) | Alfredo POLO | Applied Radiation Biology and Radiology Section | International Atomic Energy Agency (IAEA) | 60 years of the Directory of Radiotherapy Centres (DIRAC) | radiotherapy in low and middle income countries.<br>This session will: Present an overview of the history of DIRAC, the current and planned functionalities, data quality assurance workflow; and<br>Present a snapshot of the current situation of radiotherapy in 2020. |
| 1300 – 1400 LIVE<br>1730 – 1830<br>REPEAT | **Live session: Q&A: Ask the Experts**<br>(1 Hour) | Involvement of the speakers and chairs from the keynote broadcasts and refresher courses. | | | | This session will: Pose questions and answers from the week's sessions, courses and discussion forums, put by a moderator to the conference contributors |
| 1400 – 1430 EAST<br>1830 – 1900 WEST | **Closing Remarks**<br>(30 Minutes) | | | | | |
| END OF DAY 4 – CLOSE OF CONFERENCE | | | | | | |

# REFRESHER COURSES PROGRAMME – DETAILED VIEW

International Conference on Advances in Radiation Oncology #ICARO3

16 – 19 February 2021 (Virtual Event)

## Refresher Courses:

Available as scheduled parallel sessions and On-demand for the duration of ICARO-3

| **Advanced Technologies / Beyond 3D**<br>**IAEA Chair: Lisbeth CORDERO, Division of Human Health, IAEA**<br>**80 Minutes** | | |
|---|---|---|
| 1. Multimodality imaging and deformable image registration (20 minutes)<br>2. Automated target volume / organs at risk delineation and treatment planning (20 minutes)<br>3. Management of interfraction motion (IGRT, Adaptive RT) (20 minutes)<br>4. Advances in dose delivery (MRI linac, transponders, FLASH) (20 minutes) | 1. Vincenzo VALENTINI, Gemelli, Universita Catolica del Sacro Cuore, Italy<br>2. Vincent GREGOIRE, Centre du Lutte Contre Le Cancer, Centre Léon Bérard, Lyon France<br>3. X. Allen LI, Medical College of Wisconsin, USA<br>4. Saiful HUQ, University of Pittsburgh School of Medicine, USA | The learning objectives for this Refresher Course are:<br>• To understand the basic principles of advanced radiotherapy techniques<br>• To understand how to transition from basic to more advanced radiotherapy techniques<br>• To learn the basis of quality and safety in advanced radiotherapy<br>• To understand the cost-benefit of advanced radiotherapy |

| **Brachytherapy in the real world**<br>**Chair: Alfredo POLO, Division of Human Health, IAEA**<br>**170 Minutes** | | |
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| 1. Status of Brachytherapy worldwide: a DIRAC study (5 minutes)<br>2. Health Economic Evaluation of Brachytherapy for cancer treatment (15 minutes) | 1. Alfredo POLO, Division of Human Health, IAEA<br>2. Alfredo POLO, Division of Human Health, IAEA | The learning objectives for this Refresher Course are:<br>• To understand what are the main indications for brachytherapy |

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| 3. Technological advances in Brachytherapy - TPS, new sources, new applicators, AI (15 minutes)<br>4. Comprehensive Quality Management in Brachytherapy (15 Minutes)<br>5. Education and training of New Generations of Brachytherapy Practitioners (20 minutes)<br>6. Omitting brachytherapy in gynaecological cancer is deleterious for your patients (15 minutes)<br>7. Cervix cancer as a model for Image Guided Brachytherapy (15 minutes)<br>8. The migration from 2D to 3D and IGBT: implementation challenges (20 minutes)<br>9. Leading the change: opportunities and challenges for brachytherapy in the management of cancer (Panel Discussion) (30 minutes)<br>10. Practical Educational Session (20 Minutes) | 3. Mauro CARRARA, Division of Human Health, IAEA<br>4. Daniel BERGER, Division of Human Health, IAEA<br>5. Supriya CHOPRA, Advanced Centre for Treatment, Research and Education in Cancer (ACTREC), India; Mauro CARRARA, Division of Human Health, IAEA<br>6. Supriya CHOPRA, Advanced Centre for Treatment, Research and Education in Cancer (ACTREC), India<br>7. Umesh MAHANTSHETTY, Tata Memorial Centre, India<br>8. Daniel BERGER, Division of Human Health, IAEA<br>9. Chair: Alfredo POLO, IAEA<br>Panellists: Umesh MAHANTSHETTY Tata Memorial Centre; Supriya CHOPRA ACTREC; Mauro CARRARA, Daniel BERGER, IAEA<br>10. Umesh MAHANTSHETTY, Daniel BERGER | • To understand how to transition from basic to more advanced brachytherapy techniques<br>• To learn the basis of quality and safety in brachytherapy<br>To understand how brachytherapy can be used to reduce costs in radiotherapy |

| **Planning quality radiotherapy services: a city approachChairs: Rolando CAMACHO, City Cancer Challenge Foundation & Eduardo ZUBIZARRETA, Division of Human Health, IAEA<br>120 minutes** | | |
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| 1. C/Can model: Planning quality radiotherapy services (15 minutes)<br>2. Demand and supply analysis: a city framework (20 minutes) | 1. Diogo NEVES, Senior Manager, Technical Assistance and Partnerships, City Cancer Challenge Foundation<br>2. Rodolfo ALFONSO, University La Habana, Cuba | The learning objectives for this session are:<br>• To identify key methodological elements to estimate demand of |

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| 3. Building a successful public-private partnership in the health sector: key elements (20 minutes)<br>4. A practical example: Yangon City, Myanmar (15 minutes) | 3. Dhawal JHAMB, Senior Investment Officer, PPP Transaction Advisory Services, International Finance Corporation<br>4. Thet KO AUNG, Technical Assistance Officer, City Cancer Challenge Foundation;<br>4. Ms KHIN CHO Win, Myanmar Society of Radiation Oncology, Myanmar | radiotherapy services within a defined catchment area (city), and<br>• To become familiar with key success factors and strategies when designing city-wide approaches. |

| **Educational Milestones in the Profession of RTT<br>Chair: Michelle LEECH, Trinity College Dublin, Ireland<br>IAEA co-chair: Kamal AKBAROV, Division of Human Health, IAEA<br>90 Minutes** | | |
|---|---|---|
| 1. Current Status of RTT education globally (15 minutes)<br>2. The advancing and changing role of the RTT (15 minutes)<br>3. Where are we going?: Future Directions for the RTT profession (15 minutes)<br>4. Panel Discussion: The current status of RT education in their region and opinions on the challenges and opportunities for RTTs in the coming decade (40 minutes) | 1. Michelle LEECH, Trinity College Dublin, Ireland<br>2. Aidan LEONG, University of Otago, New Zealand<br>3. Mary COFFEY, Trinity College Dublin, Ireland<br>4. Chair: Michelle LEECH<br>Panellists: Gurvinder Singh WADHAWAN, Rajiv, Gandhi Cancer Institute and Research Centre, India;<br>Samuel OPOKU University of Ghana, Ghana;<br>Colette DIJCKS, Maastro Clinic, Maastricht Netherlands;<br>John RYAN, RMIT University Australia;<br>Mary COFFEY, Trinity College Dublin, Ireland;<br>Aidan LEONG University of Otago, New Zealand | The learning objectives for the Educational Milestones in the Profession of RTT Refresher Couse are:<br>• To discuss current status of RTT education worldwide<br>• To identify challenges and future directions for the RTT profession |

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| **Expanding Access to Radiotherapy**<br>**Chair: Eduardo ZUBIZARRETA, Applied Radiation Biology and Radiotherapy Section, International Atomic Energy Agency**<br>**120 minutes** | | |
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| 1. Global efforts (20 minutes)<br>2. Challenges (20 minutes)<br>3. Translating incidence into needs (20 minutes)<br>4. Sustainability and access (20 minutes)<br>5. Resources and costs (20 minutes)<br>6. Investment framework (20 minutes) | 1. Mary GOSPODAROWICZ, the Princess Margaret Cancer Centre, Toronto, Canada<br>2. Surbhi GROVER, Hospital of the University of Pennsylvania, USA<br>3. Michael BARTON University of New South Wales, Australia<br>4. Alfredo POLO, Division of Human Health IAEA<br>5. Eduardo ZUBIZARRETA, Division of Human Health IAEA<br>6. Danielle RODIN, University of Toronto, Canada | The learning objectives for this Refresher Course are:<br>• To review current initiatives and identify global challenges in improving.<br>• To provide understanding about the different methods to calculate the needs.<br>• To explain and facilitate available tools for calculation of radiotherapy resources and costs associated.<br>• To discuss strategies in developing investment cases for radiotherapy<br>• To understand the meaning of Valued-based healthcare in radiotherapy |

| **Paediatric Radiation Oncology**<br>**Chair: Sahaja ACHARYA, St Jude Children's Research Hospital, USA**<br>**IAEA co-chair: Kirsten HOPKINS, Division of Human Health, IAEA**<br>**115 minutes** | | |
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| 1. Global Partnerships including St Jude's activities and the GICC workshops (15 minutes)<br>2. Delivering Paediatric Radiotherapy within Multidisciplinary team care (15 minutes)<br>3. CNS (25 minutes)<br>4. Non-CNS (25 minutes) | 1. Paola FRIEDRICH, Catherine G. LAM, St. Jude Children's Research Hospital, USA<br>2. Karen MARCUS, Harvard Medical School, USA<br>3. Sahaja ACHARYA, St. Jude Children's Research Hospital, USA | The learning objectives of this Refresher Course are:<br>• To highlight the benefits and opportunities of global partnerships<br>• To refresh the processes for multidisciplinary management of children with cancer including treatment of late effects and follow up into adulthood |

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| 5. Management of late effects and follow up of the child into adulthood (15 minutes)<br>6. Panel Discussion: "What training in Paediatric Radiotherapy is delivered in your country for:<br>• Radiation Oncology residents<br>• Radiation Oncologists taking a substantive role in Paediatric Radiotherapy" (20 minutes) | 4. Susan HINIKER, Stanford University Medical Center, USA<br>5. Stephanie PERKINS, Washington University School of Medicine in St. Louis, USA<br>6. Chair: Kirsten HOPKINS, IAEA<br>Panellists: Verity AHERN, University of Sydney, Australia;<br>Rosangela CORREA-VILLAR, Universidade de Sao Paulo, Brazil;<br>Mohammed ZAGHLOUL, Cairo University, Egypt;<br>Wondemagegnhu TIGENEH, Addis Ababa University, Ethiopia | • To refresh contouring skills in common challenging sites in paediatric radiation therapy<br>• To review current training in paediatric radiotherapy and identify innovative ideas in diverse global settings |

| **Proton Radiotherapy**<br>**Chair: Karen KIRKBY, Professor of Proton Beam Physics, University of Manchester, UK**<br>**IAEA co-chair: Kirsten HOPKINS, Division of Human Health, IAEA**<br>**120 Minutes** | | |
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| 1. Does it work: Developing and implementing clinical trials of PBT (20 minutes)<br>2. Medical Physics Issues in Proton Therapy: Changing from 2 phases to single phase simultaneous integrated boost (to better use the optimiser) and use of EUD for plan assessment (20 minutes)<br>3. The patient-centred PBT pathway (15 minutes)<br>4. Image Guidance in proton therapy (15 minutes)<br>5. Dose Accumulation in Proton Therapy (15 minutes) | 1. Cai GRAU, Aarhus University, Denmark<br>2. Matthew CLARKE, University of Manchester, UK<br>3. Vicky HUGHES, The Christie NHS Foundation Trust, UK<br>4. Katja LANGEN, Emory University, USA<br>5. Antony J LOMAX, Paul Scherrer Institute, Switzerland | The learning objectives of this Refresher Course are:<br>• To understand how the multidisciplinary proton team research, update and deliver state of the art proton therapy<br>• To highlight conundrums that proton beam therapy presents in medical physics and radiobiology<br>To review the specific role and evidence for proton therapy in the management of children with cancer |

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| 6. FLASH proton therapy? (15 minutes)<br><br>7. Paediatric Proton Therapy (20 minutes) | 6. Jack AYLWARD, University of Manchester, UK<br>7. Tom MERCHANT, St. Jude Children's Research Hospital, USA | |

| **Radiation Oncology Education in the Interconnected World**<br>**Chairs: Sandra TURNER, The University of Sydney, Australia; Jesper Grau ERIKSEN, Aarhus University, Denmark**<br>**IAEA co-chair: Ben PRAJOGI, Division of Human Health, IAEA**<br>**120 Minutes** | | |
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| 1. Global health competencies in radiation oncology education (15 minutes)<br>2. Integrating radiation oncology education and research (15 minutes)<br>3. Interprofessional education (15 minutes)<br><br>4. Strengthening Networks in Worldwide Radiation Oncology Education:<br>○ Perspectives: HIC (15 minutes) Daniel GOLDEN<br>○ Perspectives: LMIC (15 minutes) Lotfi KOCHBATI<br>○ Panel Discussion (45 minutes) | 1. Meredith GIULIANI, University of Toronto, Canada<br>2. Miriam MUTEBI, Aga Khan University Hospital, Nairobi, Kenya<br>3. Michelle LEECH, Trinity College Dublin, Ireland<br>4. Daniel GOLDEN, UChicago Medicine, USA<br>4. Lotfi KOCHBATI, Institut Salah-Azaïz de Cancerologie, Tunisia<br><br>4. Chair: Sandra TURNER, The University of Sydney, Australia;<br>Panellists: Jesper Grau ERIKSEN, Aarhus University, Denmark;<br>Daniel GOLDEN, UChicago Medicine, USA;<br>Lotfi KOCHBATI, Institut Salah-Azaïz de Cancerologie, Tunisia | The learning objectives of this Refresher Course are:<br>• To discuss the needs and innovative methods to integrate perspectives and skills for international collaboration and advocacy roles into radiation oncology education<br>• To share best practices on the integration of oncology education and research<br>• To discuss the value of interprofessional education and propose innovative educational methods to teach and assess interprofessional collaboration skills<br>• To discuss various initiatives to strengthen radiation oncology through world-wide education |

| **Radiobiology**<br>**Chair: Mike JOINER, Wayne State University School of Medicine, USA**<br>**IAEA co-chair: Oleg BELYAKOV, Division of Human Health, IAEA** |
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| 90 Minutes | | |
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| 1. Radiobiology of high dose per fraction (30 minutes)<br>2. Role of radiobiology in Spatial Fractionated Radiation Therapy and FLASH (25 minutes)<br>3. Radiobiological advances in Radiation Medicine (25 minutes)<br>4. Personalized Radiotherapy: From bench to bedside (25 minutes) | 1. Mike JOINER, Wayne State University School of Medicine, Michigan, United States<br>2. Jolyon HENDRY, The University of Manchester, UK<br>3. Marjan BOERMA, UAMS College of Pharmacy, Little Rock, USA<br>4. Loredana MARCU, University of Oradeaa, Romania, University of South Australia, Australia | The learning objectives for this Refresher Course are:<br>• To learn the basic and advanced concepts of radiobiology<br>• To review advances in translational radiation biology and their applications in radiation oncology<br>• To understand what the main methods and implications of radiation biology to radiation medicine are |

| Technological developments in radiation therapy practice<br>Chair: Michelle LEECH, Trinity College Dublin, Ireland<br>IAEA co-chair: Kamal AKBAROV, Division of Human Health, IAEA<br>90 Minutes | | |
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| 1. A changed set up?: Implementation of surface guided radiation therapy (15 minutes)<br>2. Advancing and changing practices: bringing the MRI-linear accelerator into clinical reality (15 minutes)<br>3. Proton therapy- new directions in treatment delivery for RTTs. (15 minutes)<br>4. Panel Discussion: The impact of new technologies on the development of the RTT profession and on the changing role of the RTT in meeting the challenges of rapid technological developments. (40 minutes) | 1. Kenton THOMPSON, Peter MacCallum Cancer Centre, Australia<br>2. Veronica POLLUTRI, Fondazione Policlinico Universitario "A. Gemelli", Italy<br>3. Sharon WONG, Singapore Institute of Technology, Singapore<br>4. Chair: Michelle LEECH<br>Panellists: Helen MCNAIR, The Royal Marsden NHS Foundation, UK;<br>Colleen DICKIE, University of Toronto, Canada;<br>Nicola BIZZOCHI, Paul Scherrer Institute, Switzerland;<br>Veronica POLLUTRI Fondazione Policlinico Universitario "A. Gemelli", Italy; | The learning objectives for this Refresher course on Technological developments in radiation therapy practice are:<br>• To discuss the impact of new technologies on the development of the RTT profession<br>• To discuss the changing role of the RTT in meeting the challenges of rapid technological developments |

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| | Sharon WONG, Singapore Institute of Technology, Singapore | |

# POSTER PRESENTATIONS - OVERVIEW

International Conference on Advances in Radiation Oncology #ICARO3
16 – 19 February 2021 (Virtual Event)

| INDICO ID No. | Presenter | Affiliation | Designating Member State/ Organization | Title of Presentation | Authors | Co-authors | Track |
|---|---|---|---|---|---|---|---|
| #5 | Taweap SANGHANGTHUM | Division of Radiation Oncology, Department of Radiology, Faculty of Medicine, Chulalongkorn University | Thailand | Dosimetric comparison between volumetric modulated arc therapy and intensity modulated proton therapy for whole brain irradiation with hippocampal sparing | Taweap SANGHANGTHUM | Sivelee SURIYAPEE; Tanawat TAWONWONG | Advanced Techniques |
| #6 | Maria DO CARMO LOPES | Medical Physics Dept., IPOCFG, E.P.E., Coimbra | Portugal | Independent verification of the pre-installed beam model in helical tomotherapy | MARIA DO CARMO LOPES; Tania Filipa SOBRINHO DOS SANTOS; Tiago VENTURA; Miguel CAPELA | | Advanced Techniques |
| #25 | Božidar CASAR | Institute of Oncology Ljubljana | Slovenia | On the dose linearity of | Božidar CASAR | Ignasi MENDEZ; Eduard GERSHKEVITSH; Sonja | Advanced Techniques |

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| | | | | detectors for small field dosimetry | | WEGENER; David JAFFRAY; Robert HEATON; Csilla PESZNYAK; Gabor STELCZER; Wojciech BULSKI; Krzysztof CHEŁMINSKI; Georgiy SMIRNOV; Natalia ANTIPINA; Andrew W. BEAVIS; Nicholas HARDING; Slaven JURKOVIĆ; Min-Sig HWANG; M. Saiful HUQ | |
| #28 | Ismail ZERGOUG | Medical Physics department - Oncopole l'espoir Oran Algeria | Algeria | TPS commissioning for IMRT/VMAT | ISMAIL ZERGOUG | Nawel KLOUCH; Hakima BAHI | Advanced Techniques |
| #37 | Claus Maximilian BAECKER | West German Proton Therapy Centre Essen | Germany | Development of proton range verification by use of titanium implants and PET | Claus Maximilian BÄCKER; Christian BÄUMER; Carina BEHRENDS; Ken HERRMANN; Walter JENTZEN; Sandra KAZEK; Kevin KRÖNINGER; Fleur SPIECKER; Beate TIMMERMANN; Jens WEINGARTEN; Jörg WULFF | | Advanced Techniques |
| #43 | Ezequiel LARGER | Leben Salud | Argentina | Simple method for evaluating flatness and symmetry | Ezequiel LARGER; Maria SOL GALLO; | | Advanced Techniques |

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| | | | | based on EPID and MATLAB | Joaquin DE BRIDA; Ricardo RUGGERI | | |
| #65 | Aik Hao NG | Ministry of Health Malaysia | Malaysia | Assessing the target shift and its effect on dose distribution using deformable image registration method for head and neck patients undergoing IMRT | Aik Hao NG; Hwee Shin SOH | | Advanced Techniques |
| #67 | Abdelkader TOUTAOUI | Hôpital Chahids Mahmoudi | Algeria | Dosimetric comparison between VMAT and dedicated stereotactic planning tool for single isocenter stereotactic radiotherapy for patients with multiple brain metastases | Abdelkader TOUTAOUI; Billel METCHAT; Samir BENCHEIKH; Ryma LOUELH; Mourad BELMESSAOUD; Hamida MAHMOUDI; Tassadit BAROUDI; Soraya RILI | | Advanced Techniques |
| #71 | Jonas RINGHOLZ | University of Wuerzburg | Germany | Small field output correction factors at 18 MV | Jonas RINGHOLZ | Sonja WEGENER; Otto A. SAUER | Advanced Techniques |
| #77 | Carla MOTA | State University of Rio de Janeiro | Algeria | Commissioning of an X-Ray Biological Research Irradiator | Carla L. MOTA; Arissa PICKLER; Andrea MANTUANO; Camila SALATA; Luis Alexandre GONCALVES MAGALHAES; | | Advanced Techniques |

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| | | | | | Carlos E. DE ALMEIDA | | |
| #91 | Nkosingiphile MAPHUMULO | National Metrology Institute of South Africa | South Africa | Determination of field output correction factors in small static photon fields following TRS-483 CoP | Nkosingiphile MAPHUMULO | | Advanced Techniques |
| #120 | Tinnagorn DONMOON | Department of Radiotherapy, Mahavajiralongkorn Thanyaburi Hospital, Thailand | Thailand | Verification of two beam-matched linear accelerators using volumetric modulated arc therapy plans | Tinnagorn DONMOON | | Advanced Techniques |
| #134 | Kishore JOSHI | Department of Radiation Oncology, ACTREC, Tata Memorial Centre | India | Evaluation of Knowledge-based planning of Volumetric Modulated Arc Therapy (VMAT) for Nasopharyngeal cancer | Kishore JOSHI; Jamema SWAMIDAS | Sarbani Ghosh LASKAR; Subhabrata GHOSAL; Jeevanshu JAIN; Reena Devi PHURAILATPAM; Shrikant KALE; Naveen MUMMUDI; Jai Prakash AGARWAL | Advanced Techniques |
| #136 | Sadia SADIQ | Pakistan Atomic Energy Commission | Pakistan | Dosimetric Comparison of VMAT and IMRT for NPC and Prostatic Carcinoma | Sadia SADIQ; Nauman AMJAD | | Advanced Techniques |
| #137 | Reena Devi PHURAILATPAM | Homi Bhabha National Institute | India | Total Marrow with Lymphoid Irradiation (TMLI) as a conditioning regimen using | Reena Devi PHURAILATPAM; Kishore JOSHI; Supratip KAPAT; Ann Christy SAJU ; | | Advanced Techniques |

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| | | | | VMAT technique: Planning and dosimetry validation | Jayant S. GODA ; Chandrasekhar TAMBE; Rajesh KINHIKAR; Siddhartha S LASKAR | | |
| #139 | Maria Elena GRECH | Sir Anthony Mamo Oncology Centre, Malta | Malta | A Measure of the Target Reposition Errors for Lung Volumetric Arc Therapy as Observed on Three-Dimensional Cone-Beam Computed Tomography, in a Single Radiotherapy Department in Malta | Maria Elena GRECH | Gemma BURKE; Dorothy Anne AQUILINA | Advanced Techniques |
| #140 | Ilya LVOVICH | Rambam Health Care Center | Israel | Bladder filling before radiation therapy treatments to the prostate – Evaluating volume, dose and reproducibility of constraints | Ilya LVOVICH; Tomer CHARAS; Eleonora KUPTZOV; Orit KAIDAR-PERSON; Riki CARMI; Rima BAHCHEVAN; Egor BOROZOV; Salem BILLAN | | Advanced Techniques |
| #18 | Jerickson Abbie FLORES | Jose R. Reyes Memorial Medical Center, Department of Radiotherapy | Philippines | Safety in Radiation Oncology (SAFRON) Incident Learning System in the Philippines: | Jerickson Abbie FLORES; Jaffar PINEDA; Lilian RODRIGUEZ; Miriam Joy CALAGUAS; Jake | | Audits, quality, safety |

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| | | | | Learning through Experience | John GALINGANA; Margareth TAVAS-AGUSTIN; Jhonatan RIPARIP; Rolando TOLEDO; Julia VALES; Eleanore Florida ALTUBAR | | |
| #21 | Jhonatan RIPARIP | Jose R. Reyes Memorial Medical Center, Department of Radiotherapy | Philippines | Obstacles in Error Reporting System Among Radiotherapy Facilities: Basis for an Enhanced ILS Policy | Jhonatan RIPARIP; Jerickson Abbie FLORES; Juan Carlo BENTINGANAN; Lilian RODRIGUEZ; Julia VALES; Jake John GALINGANA | | Audits, quality, safety |
| #30 | Jaffar PINEDA | Jose R. Reyes Memorial Medical Center, Department of Radiotherapy | Philippines | Failure Modes and Effects Analysis in Image Guided High-Dose-Rate Brachytherapy: A Single Institutional Study | Jaffar PINEDA | Jerickson Abbie FLORES; Margareth TAVAS-AGUSTIN; Lilian RODRIGUEZ; Rolando TOLEDO; Eleanore Florida ALTUBAR | Audits, quality, safety |
| #42 | Eliana QUINTEROS | Leben Salud | Argentina | Implementation of a comprehensive verification program for 3D high-dose rate brachytherapy plans: "QA-Brachy" | Eliana QUINTEROS | Ricardo RUGGERI; Joaquin DE BRIDA; Maria Sol GALLO | Audits, quality, safety |
| #62 | Arissa PICKLER | LCR/UERJ | Brazil | Analysis of The Fricke-Pmma Interaction and its Effects in Fricke Dosimetry | Arissa PICKLER | Andrea MANTUANO; Camila SALATA; Carla L. MOTA; Mariano G. DAVID; Glorimar J. de AMORIM; Luís A.G. | Audits, quality, safety |

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| | | | | | | MAGALHÃES; Carlos E. DEALMEIDA | |
| #135 | Manuel CASTRILLON | Clinica Las Condes | Chile | Comparison of monitor units and dose calculation between two independent second-check verification software | Manuel CASTRILLON; Jose RODRIGUEZ | | Audits, quality, safety |
| #143 | Una FINDLAY | Public Health England | United Kingdom | Optimising Learning from a National Incident Learning System in Radiotherapy: The PHE Experience | Una FINDLAY | | Audits, quality, safety |
| #70 | Mwape MOFYA | Cancer Diseases Hospital | Zambia | A comparative study of two treatment planning systems for IMRT optimization | Mwape MOFYA; Marco D'ANDREA; Lidia STRIGARI | | Medical Physics Education |
| #78 | Saba HUSSAIN | International Center for Theoratical Physics (ICTP)/University of Trieste, | Italy | Small-field output factor determination for Versa HD flattened and flattening filter-free beams with various detectors | Saba HUSSAIN | Mariaconcetta LONGO; Stefania CORA; Francescon PAOLO | Medical Physics Education |
| #105 | Rosa PETIT | International Center for Theoretical Physics (ICTP) | International Center for Theoretical Physics (ICTP) | Statistical Control Process in Tomotherapy pre-treatment QA | Rosa PETIT; Eleonora VANZI; Gianmarco DE OTTO; Micheangelo | | Medical Physics Education |

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| #115 | Edith Villegas GARCIA | International Center for Theoretical Physics (ICTP) | International Center for Theoretical Physics (ICTP) | Brain Radiotherapy during pregnacy: a dosimetric study for fetal dose with OSLD | Edith VILLEGAS GARCIA; Federica GUIDA; Alessandra GERMANI; Francesca DE MONTE; Marco FUSELLA; Antonella ROGGIO; Alessandro SCAGGION; Roberto ZANDONA; Fabio BUSATO; Marta PAIUSCO | | Medical Physics Education |
| #124 | Mohammed ABUJAMI | International Center for Theoretical Physics (ICTP) | International Center for Theoretical Physics (ICTP) | Confidence in 6 MV and 6 MV FFF VMAT EPID QA adopting the AAPM-TG119 approach | Mohammed ABUJAMI | Stefano RIGA; Marco FELISI; Angelo Filippo MONTI; Maria Grazia BRAMBILLA; Claudia CARBONINI; Hae Song MAINARDI; Cristina De MATTIA; Maria BERNADETTA Ferrari; Alberto TORRESIN | Medical Physics Education |
| #7 | Awusi KAVUMA; Daniel KANYIKE | Uganda Cancer Institute - Kampala | Uganda | The distribution and treatment outcomes of paediatric cancer patients referred for radiotherapy in low and middle-income countries – The Uganda experience | Awusi KAVUMA | Daniel KANYIKE; Israel LUUTU | Clinical Research |

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| #31 | Dorothy Faye TAN | Jose R Reyes Memorial Medical Center | Philippines, SEAROG | The Immunomodulating Effects of Biobran (Rice Bran Arabinoxylan Compound) on Hematologic Profile, Nutritional Status and Quality of Life among Head and Neck Carcinoma Patients Undergoing Radiation Therapy: A Double Blind Randomized Control Trial | Dorothy Faye S. TAN; Jerickson Abbie S. FLORES | Mary Ann REYNA | Clinical Research |
| #36 | Marc Vincent BARCELONA | Jose R. Reyes Memorial Medical Center | Philippines | Induction Chemotherapy Followed by Concurrent Chemoradiotherapy in a 14 Year Old Patient With Poorly Differentiated Nasopharyngeal Carcinoma: A Case Report on the use of the ARAR0331 Protocol | Marc Vincent BARCELONA | Jerickson Abbie FLORES; Mario GO Jr.; Jochyrs ESTANISLAO | Clinical Research |
| #39 | Misael CRUZ | Central Luzon Integrated Oncology Center, City of San | Philippines | Treatment outcome comparison between 33 versus 35 fractions among | Misael CRUZ; Mary Ann Rose AGUSTIN; Madonna VALENZUELA | | Clinical Research |

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| | | Fernando Philippines | | nasopharyngeal carcinoma using helical approach: A retrospective study | | | |
| #40 | Misael CRUZ | Central Luzon Integrated Oncology Center, City of San Fernando Philippines | Philippines | Randomized Controlled Trial Comparing Virgin Coconut Oil and Salt and Soda Mouthwash Versus Salt and Soda Mouthwash Alone in Preventing Grade 2 and Above Radiation- Induced Mucositis In Patients With Nasopharyngeal Carcinoma (VCO-PRIM STUDY) | Misael CRUZ; Enrico TANGCO; Marigie OLVINA; Thelma SARMIENTO; Gonzalo BANUELOS; Cyndy PUSAG; Carl Ruperto AGUILAR; M.A. HABANA; C. CORDERO; J. MANTARING | | Clinical Research |
| #96 | Meriem BOHLI | Radiotherapy Department, Abderrahman Mami Hospital | Tunisia | What is the optimal radiotherapy regimen for thoracic palliative radiotherapy in lung cancer? | Meriem BOHLI | Dorra AISSAOUI; Raouia Ben AMOR; Ghada ABDESSATAR; Jamel YAHYAOUI; Rim MOUJAHED; Awatef HAMDOUN; Lotfi KOCHBATI | Clinical Research |
| #97 | Semia ZARRAA | Salah Azaiz Institute, Department of Radiotherapy, Faculty of Medicine, Tunis | Tunisia | Evolution and Prognosis of Juvenile Nasopharyngeal Carcinoma: results from of a study on 68 children in Salah | Semia ZARAA; Safia YAHYAOUI | Noubbigh Ghaiet EL FIDA; Souheil JEBALI; Said GRITLI; Chiraz NASR | Clinical Research |

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| | | | | Azaiz Institute in Tunisia | | | |
| #99 | Alia MOUSLI | University Tunis El Manar | Tunisia | Stereotactic Radiotherapy for Brain Metastases: Experience of Salah Azaiez Institute in Tunisia | Alia MOUSLI | Khalil MAHJOUBI; Lotfi Ben SALEM; Mounir BESBES; Chiraz NASR; Asma BELAID | Clinical Research |
| #123 | Raouia AMOR | Radiation Oncology Department, Abderrahmen Mami Hospital | Tunisia | Effectiveness of single fraction radiotherapy (8Gy) in Metastatic spinal cord compression | Raouia Ben AMOR; meriem BOHLI; Dorra AISSAOUI; Lotfi KOCHBATI | | Clinical Research |
| #22 | Miriam Joy CALAGUAS | St. Luke's Medical Center | Philippines | Patterns of Radiotherapy Practices in Breast Cancer in Asia: A Challenge in Diversity | Miriam Joy CALAGUAS; Jerickson Abbie FLORES; Candice Chin-chin YUI | | Health Economics and Health Systems Research |
| #23 | Jerickson Abbie FLORES | Jose R. Reyes Memorial Medical Center | Philippines | Impact of Covid-19 in Radiation Oncology Practice in the Philippines: A Situational analysis | Jerickson Abbie FLORES; Misael CRUZ; Gonzalo BANUELOS; Thelma SARMIENTO; Enrico TANGCO; Fritzie VILLEGAS; Marigie OLVINA; Carl Ruperto AGUILAR; Cyndy PUSAG; Jaemelyn Marie FERNANDEZ-RAMOS; Katherine SEBASTIAN- | | Health Economics and Health Systems Research |

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| | | | | | ENRIQUEZ; Karl Jeremy LO | | |
| #35 | Thomas Vincent VERGARA | St. Luke's Medical Center - Quezon City | Philippines | Responding to the COVID-19 Pandemic: Perspectives from Two Radiation Oncology Departments in the Philippines | Thomas Vincent VERGARA | Miriam Joy CALAGUAS; Manuel Martin LOPEZ; Juan Martin MAGSANOC; Angela PENA-CAMACHO; Angela GAERLAN-TAGLE; Caissa Elvira TANGCO-ABAO | Health Economics and Health Systems Research |
| #49 | Handoko HANDOKO | Faculty of Medicine, Universitas Indonesia – Department of Radiation Oncology, Dr. Cipto Mangunkusumo National General Hospital – Jakarta | Indonesia | Breaking COVID-19 Transmission: Leveraging on Telemedicine for Cancer Management in Indonesia | Handoko HANDOKO; Nicholas NICHOLAS; Endang NURYADI; Denny HANDOYO; Soehartati A GONDHOWIARDJO | | Health Economics and Health Systems Research |
| #52 | Soehartati A GONDHOWIARDJO | Faculty of Medicine, Universitas Indonesia – Department of Radiation Oncology, Dr. Cipto Mangunkusumo National General Hospital – Jakarta | Indonesia | Indonesia National Action Plan for Cancer Control 2020 – 2024 | Soehartati A GONDHOWIARDJO; Tiara Bunga Mayang PERMATA; Steven OCTAVIANUS; Nurhanita NURHANITA; Novi Elis KHUMAESA; Putri MAHARANI; Nicholas NICHOLAS; Lusi Tania RAHMARTANI | | Health Economics and Health Systems Research |

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| #54 | Angela GISELVANIA | Faculty of Medicine, Universitas Indonesia – Department of Radiation Oncology, Dr. Cipto Mangunkusumo National General Hospital – Jakarta | Indonesia | Leveling of Radiation Oncology Services in Indonesia | Angela GISELVANIA; Steven OCTAVIANUS; Handoko HANDOKO; Henry KODRAT; Sri Mutya SEKARUTAMI; Soehartati A GONDHOWIARDJO | | Health Economics and Health Systems Research |
| #55 | Melyda MELYDA | Faculty of Medicine, Universitas Indonesia – Department of Radiation Oncology, Dr. Cipto Mangunkusumo National General Hospital – Jakarta | Indonesia | Human Resources and Facilities for Radiotherapy Service Requirements in Indonesia: A Prediction Model over a Ten-year Period | Angela GISELVANIA; Steven OCTAVIANUS Melyda MELYDA; Steven OCTAVIANUS; Soehartati A GONDHOWIARDJO | | Health Economics and Health Systems Research |
| #114 | Julio ROJAS MARTINEZ | Instituto Nacional del Cancer | Paraguay | Current Status of Radiation Oncology Services in Paraguay | Julio ROJAS MARTINEZ; Guisella Raquel RIVELLI ZEA | | Health Economics and Health Systems Research |
| #121 | Raouia AMOR | Radiation Oncology Departement , Abderrahmen Mami Hospital | Tunisia | Is hypofractionated radiotherapy in breast cancer a cost effective approach? | Meriem BOHLI; Raouia Ben AMOR; Dorra AISSAOUI; Lotfi KOCHBATI | | Health Economics and Health Systems Research |
| #10 | Mohammed CHABANI | Central Hospital of The Army, Radiation Oncology, Algiers | Algeria | Prostate cancer: Simultaneous integrated boost with Radixact® System, about a | Mohammed CHABANI; Imad ARAREM; Samia CHAMI | | Implementation of New Technologies |

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| | | | | series of 74 patients | | | |
| #26 | Kartika Erida BROHET | Radiotherapy department, Dharmais Hospital National Cancer Center (Indonesia National Cancer Center) | Indonesia | Geometrical Analysis of IMRT/VMAT on Head and Neck Case Using New and Reused Thermoplastic Mask in Dharmais Hospital National Cancer Center Indonesia | Kartika Erida BROHET; Syarifatul ULYA | | Implementation of New Technologies |
| #69 | Jaymee FERNANDEZ-RAMOS | Department of Radiotherapy, Jose R. Reyes Memorial Medical Center, Manila | Philippines | Transitioning from 2-D to 3-D Image-Guided Brachytherapy (IGBT) in Gynecologic Malignancies in the Philippines: Looking Back and Moving Forward | Miriam Joy CALAGUAS; Jerickson Abbie FLORES; Jaemelyn FERNANDEZ-RAMOS; Lilian RODRIGUEZ; Rey Delos REYES | | Implementation of New Technologies |
| #74 | Kennedy LISHIMPI | Cancer Diseases Hospital | Zambia | Adaptation of an Extended Five Field technique for the treatment of Head & Neck Cancer at Cancer Diseases Hospital | Kennedy LISHIMPI; Barbara Chanda M'ULE | | Implementation of New Technologies |
| #106 | Shoon Mya AYE | Radiotherapy department, Yangon General Hospital | Myanmar | Can accelerated hypofractionated radiotherapy (AHRT) be an acceptable | Shoon Mya AYE | Lin Lin KYI; Moe HLAING; Aye Aye MYINT; Khin Cho WIN | Implementation of New Technologies |

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| | | | | treatment option in inoperable non-small cell lung cancer Myanmar patients? | | | |
| #112 | Thongtra NANNA | Ramathibodi Hospital, Mahidol University | Thailand | Treatment outcomes of stereotactic body radiotherapy for early stage non-small-cell lung cancer and lung metastasis | Thongtra NANNA | Keeratikarn BOONYAWAN; Putipun PUATAWEEPONG; Thitiporn SUWATANAPONGCHED ; Nattinee WATTAKIYANON; Rawee RUANGKANCHANASETR ; Thiti SWANGSILPA | Implementation of New Technologies |
| #27 | Edwin Mark CHIONG | Jose R. Reyes Memorial Medical Center | Philippines | Correlation Between the Levels of Salivary A-Amylase Activity and Xerostomia in Head and Neck Cancer Patients Undergoing Radiation Therapy | Edwin Mark CHIONG; Jerickson Abbie FLORES | | Radiobiology |
| #50 | Endang NURYADI | Department of Radiation Oncology, Dr. Cipto Mangunkusumo National General Hospital - Faculty of Medicine Universitas Indonesia, Jakarta | Indonesia | Precision medicine in radiotherapy; discover a potential biomarker for treatment resistance | Endang NURYADI; Handoko HANDOKO | Takahiro OIKE; Handoko HANDOKO; Tiara Bunga Mayang PERMATA; Tatsuya OHNO; Soehartati A. GONDHOWIARDJO | Radiobiology |

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| #56 | David Andi WIJAYA | Department of Radiation Oncology, Dr. Cipto Mangunkusumo National General Hospital - Faculty of Medicine Universitas Indonesia, Jakarta | Indonesia | In Vitro Study of Various Extracts and Bioactive Compounds Potential Role in Increasing Radiation Efficacy in Human Cancer Cell Lines | Endang NURYADI; Handoko HANDOKO; David Andi WIJAYA; Soehartati A. GONDHOWIARDJO | Tiara Bunga Mayang PERMATA; Agung Tri CAHYONO, Aslim TASLIM, Tisa T. PUTRI, Henry KODRAT, Ida Ayu T. KUMALA Dewi, Sri Mutya SEKARUTAMI | Radiobiology |
| #72 | Jose RAJ | Christian Medical College | India | Feasibility on use of gel electrophoresis-based quantification of DNA double strand break. | Jose RAJ | Rabi SINGH; Timothy SANTHOSH | Radiobiology |