

# MEDICAL PHYSICS IN THE BALTIC STATES

## 14<sup>TH</sup> CONFERENCE & WORKSHOP PROGRAM (TENTATIVE)

Thursday, November 7, 2019

**WORKSHOP:** Innovations and Improvements in Radiotherapy and Radiology

*Hosting institution:* Hospital of Lithuanian University of Health Sciences “Kaunas Clinics”.

**13.30-14.00** *Registration of participants at the Hospital of Lithuanian University of Health Sciences “Kaunas Clinics” Radiological diagnostic center, room 160, Eivenių str. 2, Kaunas*

**14.00-14.10** Welcome to the Hospital of Lithuanian University of Health Sciences “Kaunas Clinics”: *prof. Renaldas Jurkevičius*, Director General; Introduction to workshop: *Conference organizers*

**14.10-14.25** First clinical experience with Leksell Gamma Knife® Icon™ unit  
(*Andrius Radžiūnas*)

**14.25-14.35** Radiotherapy – current situation and future trends  
(*Laimonas Jaruševičius*)

**14.35-14.50** Future of Nuclear medicine centre  
(*Donatas Vajauskas*)

**14.50-15.00** Surface Tracking in Radiotherapy  
(*Lars Lilja, C-RAD*)

**15.00-17.00** Site visits: Gamma knife facility, LUHS Oncology Institute, Radiotherapy department, PET/CT facility  
(*Medical physicists: E. Jaselskė, L. Kudrevičius and L. Gilys*)

**Friday, November 8, 2019**

**8.30-9.00** Registration of participants at **Kaunas University of Technology, Studentų str. 50–325F, Kaunas**

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**9.00-9.15** Conference opening: **Leonas Balaševičius**, KTU Vice-Rector for Research and Innovations, **Bronė Narkevičienė**, Dean of the Faculty of Mathematics and Natural Sciences, **Giedrius Laukaitis**, Head of Physics Department (invitation pending), **Sören Mattsson**, Lund University, Skåne University Hospital Malmö, **Diana Adlienė**, Kaunas University of Technology, Physics Department

**9.15-9.30** EFOMP Welcome address: **dr. Marco Brambilla**, President of EFOMP. "EFOMP ACTIONS IN MEDICAL PHYSICS"

**Session 1. Chair: prof. dr. Diana Adlienė**

**9.30-10.00** **Sören Mattsson** and **Martin Andersson**. RADIATION SAFETY IN HIGH-DOSE RADIOPHARMACEUTICAL THERAPY.

**10.00-10.15** **Larisa Chipiga**, **Aleksandr Vodovatov**, **Galina Kataeva**, **Daria Ryzhkova**, **Mikhail Dolgushin**, **Mikhail Menkov**, **Nikolay Kostenikov**, **Kristina Sergunova**, **Alexey Smirnov**, **Christian Bernhardsson**. PROPOSAL OF QUALITY ASSURANCE SYSTEM FOR POSITRON EMISSION TOMOGRAPHY IN THE RUSSIAN FEDERATION.

**10.15-10.30** **Mikhail V. Osipov**, **Andrey V. Vazhenin**, **Anna I. Kuznetsova**, **Irina A. Aksenova**, **Daria A. Vazhenina**, **Mikhail E. Sokolnikov**. PET-CT IN ONCOLOGICAL PATIENTS WITH OCCUPATIONAL EXPOSURE TO IONIZING RADIATION.

**10.30-10.45** **Vaida Grigonienė**, **Kirill Skovorodko**, **Mažena Maciusovič**, **Rūta Urbanavičiūtė**, **Laurynas Gilys**, **Birutė Gricienė**. IMPLEMENTATION OF NUCLEAR MEDICINE QUALITY ASSURANCE PROGRAMME IN LITHUANIAN HOSPITALS.

**10.45-11.00** **Kirill Skovorodko**, **Arūnas Gudelis**. MEASUREMENTS TRACEABILITY THROUGH COMPARISONS: RESULTS OF FIVE RADIONUCLIDE DOSE CALIBRATORS.

**Coffee break 11:00-11.15**

**Session 2. Chair: dr. Christian Bernhardsson**

**11.15-11.45** **Marco Brambilla**. CUMULATIVE RADIATION EXPOSURE OF PATIENTS FROM RECURRENT RADIOLOGICAL EXPOSURES.

**11.45-12.00** **Aleksandr Vodovatov**, **Sergey Ryzhov**, **Zoya Lantukh**, **Kirill Tolkachev**, **Sergey Morozov**. A ROAD-MAP FOR THE DEVELOPMENT OF THE REFERRAL GUIDELINES FOR DIAGNOSTIC IMAGING IN THE RUSSIAN FEDERATION.

**12.00-12.15** **Artem Davydov**, **Artem Biblin**, **Leonid Repin**, **Nadezhda Vishnyakova**, **Alexandr Vodovatov**. FEATURES OF THE PERCEPTION OF RADIATION RISKS BY RUSSIAN RADIATION SAFETY SPECIALISTS.

**12.15-12.30** **Agnese Katlapa**, **Emils Zalcmanis**. DIAGNOSTIC REFERENCE LEVELS AND PATIENT DOSES FOR ADULT PATIENTS IN CONVENTIONAL X-RAY EXAMINATIONS IN LATVIA.

**12.30-12.45** **Polina Druzhinina**, **Ludmila Eremina**, **Alexander Vodovatov**, **Ilya Shatskiy**. PATIENT DOSES FROM TYPICAL RADIOGRAPHY EXAMINATIONS IN THE LENINGRAD REGION.

- 12.45-13.00 Timur Jariomenko and Nikolajus Medvedevas. PRACTICAL COMPARISON OF DIFFERENT PATIENT'S DOSE ESTIMATION METHODS DURING MEDICAL X-RAY PROCEDURES
- 13.00-13.15 Ilya Shatskiy. DOSE ASSESSMENT OF MEDICAL EXPOSURE OF RADIOGRAPHIC DENTAL STUDIES.

**Time for the lunch 13:15 – 14:15**

**Session 3. Chair: dr. Jurgita Laurikaitienė**

- 14.15-14.30 Evelina Jaselskė, Linas Kudrevičius, Viktoras Rudžianskas, Tadas Didvalis, Diana Adlienė. FIRST APPROACH TO 3D DOSIMETRY VERIFICATION USING Leksell Gamma Knife® Icon™.
- 14.30-14.45 Romualdas Griškevičius, Marijus Astrauskas, Kęstutis Akelaitis, Ieva Markevičienė, Jonas Venius. BENEFITS OF USING AUTOMATED ARTIFICIAL INTELLIGENCE OPTIMIZATION ALGORITHM IN RADIATION THERAPY.
- 14.45-15.00 Marijus Astrauskas, Romualdas Griškevičius, Kęstutis Akelaitis, Jonas Venius. VARIAN REAL-TIME POSITION MANAGEMENT SYSTEM OVERVIEW – VERIFICATION OF MARKER BLOCK POSITION AFTER TREATMENT COUCH SHIFTS.
- 15.00-15.15 Agnieszka Kuchcińska, Elzbieta Lampka, Wojciech Bulski, Maryna Rubach, Jacek Lampka, Dorota Kiprian. RADIOTHERAPY OF PREGNANT PATIENT – PROCEDURES AND THEIR IMPROVEMENTS TO STRENGTHEN RADIATION SAFETY CULTURE IN MARIA SKŁODOWSKA-CURIE INSTITUTE – ONCOLOGY CENTRE IN WARSAW.
- 15.15-15.30 Nur Kodaloglu and Ferah Yildiz. DESIGN OF A BRA AND A SHIELD TO SPARE THE CONTRALATERAL BREAST TO REDUCE THE RISK OF SECONDARY CANCER DUE TO RADIOTHERAPY.
- 15.30-15.45 Arvydas Juozapas Janavičius. SUPERDIFFUSION AND AUGER THERAPY PRODUCED WITH X-RAYS

**Coffee break 15.45-16:00**

**Session 4. Chair: dr. Jevgenijs Proskurins**

- 16.00-16.15 Juras Kišonas, Jonas Venius, Olga Sevriukova, Mindaugas Grybauskas, Arvydas Burneckis, Ričardas Rotomskis. ACUTE RADIODERMATITIS CLINICAL MANIFESTATION IN COMPARISON WITH REFLECTANCE CONFOCAL MICROSCOPY.
- 16.15-16.30 Vladimirs Kozlovs, Margit Heinlaan, Dmitrijs Merkulovs. MEASUREMENT OF THE CONCENTRATION OF FUNCTIONALIZED POLYMER NANOPARTICLES IN LIQUID SUSPENSIONS USING LIGHT REFRACTION.
- 16.30-16.45 Neringa Šeperienė and Rimas Šeperys EVALUATION OF IRRADIATED DOSE GELS USING PHOTO-SCANNING METHOD".
- 16.45-17.00 Aleksandras Ševčik and Diana Adlienė. POLYCHROMATIC X-RAY ATTENUATION PROPERTIES OF NORMOXIC POLYMERS GELS.

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- 17.15-18.15 **Special Leadership Meeting with EFOMP President**  
(Representatives from different Medical Physicists societies)

**19:30-22:00 Get-together party (place to be announced)**

Saturday, November 9, 2019

9.00-9.30 Registration of participants at Kaunas University of Technology, Studentų str.50-325F, Kaunas.

Session 5. Chair: dr. Benas Gabrielis Urbonavičius

9.30-9.45 Christian Bernhardsson, Kristina Eriksson Stenström, Sören Mattsson, Mattias Jönsson, Guillaume Pedehontaa-Hiaa, Christopher Rääf, Charlotta Nilsson, Vytenis Barkauskas, Aliaksandr Dvornik, Siarhei Haponenka, Vladislav Nekrasov, Aleksandr Vodovatov, Valery Ramzaev. ZERO POINT ASSESSMENT OF THE RADIATION ENVIRONMENT – EXAMPLES OF A PROGRAM APPLIED IN SWEDEN (ESS) AND IN BELARUS (BELNPP).

9.45-10.00 Hussien El-Samman, Wafaa Arafa, Ashry Ashry, Lamiaa Abdelrazik. MEASUREMENT OF RADON EXHALATION RATE USING LOCAL TECHNIQUE.

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10.00-10.15 Tadas Didvalis, Paulius Ruzgys, Saulius Šatkauskas, Diana Adlienė, Saulius Mickevičius. X-RAY SCATTERED RADIATION INDUCED ROS GENERATION AND CELL VIABILITY CHANGE RELATED TO ABSORBED DOSE.

10.15-10.30 Antonio Jreije and Diana Adlienė. APPLICATION OF DICENTRIC ASSAY FOR TRIAGE DOSE ESTIMATION IN CASE OF LARGE-SCALE RADIATION EMERGENCIES

10.30-10.45 Sridhar Hariharaputran, Arul Murugan Natarajan, Zilvinas Rinkevicius. MULTISCALE MODELING AND ANALYSIS OF LIPID MEMBRANES INTERACTION WITH ANTIBIOTICS: A CASE STUDY ON GRAM-NEGATIVE BACTERIA

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10.45-11.00 Ksenija Priladiša, Jurgis Siliņš, Tatjana Glaskova-Kuzmina, Jevgenijs Proskurins, Sandra Bērziņa, Elizabete Jaunozola. ENVIRONMENTAL AGEING AND ITS EFFECT ON COMPRESSIVE PROPERTIES OF DENTAL COMPOSITE.

11.00-11.15 Giedrė Morkūnaitė, Rimantas Ožiušas. EFFICIENCY AND COLOUR STABILITY OF A COMBINED IN-OFFICE AND TAKE-HOME TEETH WHITENING WITH PHILIPS ZOOM SYSTEM: A RETROSPECTIVE STUDY.

11.15-11.30 Virgilijus Minialga. MAIN PIEZOELECTRIC PARAMETERS OF BONE MEASURED BY INTERFEROMETRIC METHODS.

**Coffee break 11:30 -11.50**

Session 6. Chair: dr. Neringa Šeperienė

11.50-12.00 Mantvydas Merkis and Benas Gabrielis Urbonavičius. DESIGN OF OPTICAL IMAGING SYSTEM FOR POLYMER GEL DOSIMETRY.

12.00-12.10 Stevan Vrbaski, Judita Puišo, Diana Adlienė, Marija Kaziukaitienė. ENHANCEMENT OF RADIOSENSITIVITY OF DOSE GELS.

12.10-12.20 Lali Keshelava, Jurgita Laurikaitienė, Artūras Andrejaitis, Reda Čerapaitė-Trušinskienė. APPLICATION OF 3D PRINTED BOLUS IN RADIOTHERAPY.

12.20-12.30 Justė Jankevičienė, Jurgita Laurikaitienė, Jurgita Čyvienė, Rūta Nedzinskienė. QUALITATIVE ANALYSIS OF HEAD AND NECK TREATMENT PLANS IN INTENSITY MODULATED RADIATION THERAPY.

- 12.30-12.40** *Aurimas Krauleidis, Dainius Burdulis, Vanda Andrijaitienė.* COMPREHENSIVE END-TO-END TEST OF TREATMENT PLANING SYSTEM ACCORDING TO IAEA METHODOLOGY: HEAD & NECK CASE WITH VMAT DELIVERY.
- 12.40-12.50** *Simona Breidokaitė, Gediminas Stankūnas, Diana Adliene.* MCNP MODEL OF MEDICAL LINEAR ACCELERATOR TREATMENT HEAD.
- 12.50-13.00** *Ieva Masiulytė and Marius Laurikaitis.* EVALUATION OF LEAD EQUIVALENT IN LEAD-FREE MATERIALS.
- 13.00-13.10** *Simas Jankauskas, Jurgita Laurikaitienė, Irina Gineikienė.* EVALUATION OF  $^{99m}\text{Tc}$  LEVELS IN URINE SAMPLES FOR NUCLEAR MEDICINE WORKERS.
- 13.10-13.30** Final remarks: *prof. Sören Mattsson*