

# Curriculum Vitae

**Viktor Iakovenko**

**B.Sc., M.Sc., Ph.D., MCCPM**

## PROFILE

Certified Medical Physicist with 7 years of experience working in the hospital and a background in MR-guided Radiation Therapy systems, experimental and detector physics. 8 years in development of novel real-time radiation monitoring and dosimetry devices within international collaborations at the European Organization for Nuclear Research (Geneva, Switzerland). 5 years in development of quality control devices for medical physics (3 disclosures). 3 years in research project management and process improvement within multidisciplinary teams in the University Health Network (Toronto, Canada). Member of the CARO Global Oncology Committee initiatives in low- and middle-income countries. Member of AAPM Working Group WGTG-51 and Treatment Delivery Subcommittee. Member of Professional Affairs Committee at Canadian Organization of Medical Physicists.

**A. DATE CURRICULUM VITAE IS PREPARED:** **January 20<sup>th</sup>, 2023.**

## B. BIOGRAPHICAL INFORMATION

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## 1. EDUCATION

- 2018 – 2020 **Radiation Oncology Physics Residency**  
Department of Radiation Oncology, University of Toronto, ON, Canada  
2-year CAMPEP accredited residency program.
- 2016 – 2018 **CAMPEP accredited graduate program curriculum**  
Ryerson University, Toronto, ON, Canada
- 2007 – 2010 **Ph.D. Particle Physics**  
Paris-Sud University, Orsay, France  
Thesis: Study of Radiative Decays and Radiation Monitoring System at the Large Hadron Collider beauty Experiment.
- 2005 – 2006 **M.Sc. Nuclear and Particle Physics**  
Taras Shevchenko National University of Kyiv, Ukraine  
Thesis: Multi-layer Metal-Foil Detector for Monitoring of Integrated Particle Fluxes at the LHCb Experiment.
- 2001 – 2005 **B.Sc. Physics**  
Taras Shevchenko National University of Kyiv, Ukraine  
Thesis: Wide-range Metal-Foil Detector.

## 2. QUALIFICATIONS, CERTIFICATIONS AND LICENSES

2021 Member of Canadian College of Physicists in Medicine.

2021 Licensed Medical Physicist in the state of Texas.

## 3. EMPLOYMENT

2022 – Present **Assistant Professor and Medical Physicist**  
University of Texas Southwestern Medical Center, Dallas, TX, USA

2020 – 2021 **Medical Physicist**  
2018 – 2020 **Physics Resident**  
Odette Cancer Centre, Sunnybrook Health Sciences Centre, Toronto, ON, Canada

2017 – 2018 **Research Analyst**  
TECHNA Institute, University Health Network, Toronto, ON, Canada

2016 – 2017 **Post Doctoral Fellow**  
Princess Margaret Cancer Centre, University Health Network, Toronto, ON, Canada

2014 – 2015 **Medical Physicist**  
INNOVACIA Cancer Centre, Lyutizh, Kiev region, Ukraine

2011 – 2016 **Researcher**  
2007 – 2011 **Graduate Student**  
2004 – 2007 **Engineer**  
Institute for Nuclear Research, National Academy of Sciences of Ukraine, Kyiv

## 4. HONOURS AND AWARDS

2021 **Sylvia Fedoruk Prize** in Medical Physics for the best paper published in 2020. “Water calorimetry in MR-linac: Direct measurement of absorbed dose and determination of chamber  $k_Q^{\text{mag}}$ ”. *Med.Phys.*47, P.6458.

2019 **Bursary** from Sunnybrook Continuing Education Support Fund. *Total amount: 850 CAD*

2018 **Audience Choice Award** at pitch competition FACIT Falcons’ Fortune 2018: “BOXcare: a blue ocean approach to radiotherapy delivery”

2015 **Fellowship** from the European Association for Cancer Research. *Total amount: 2100 EUR.*

2015 **Scholarship** from World Congress IUPESM 2015. *Covered Congress Registration.*

2015 **Scholarship** for CERN School: Accelerators for Medical Applications. *Covered registration and accommodation.*

2014 – 2016 **Scholarship** from the Presidium of National Academy of Sciences of Ukraine for Young Scientists. *Total amount: 21,000 UAH.*

2014 **Best oral presentation** at IV International Conference: Medical Physics – the current status, problems and development directions. New technologies, Kyiv, Ukraine. *Total amount: 500 UAH.*

2013 **Travel grant** for workshop The Future of Radiation Oncology: imaging, dosimetry, biology & therapy. *Total amount: 300 EUR.*

2013 **Best oral presentation** at International Conference for Young Scientists and PhD students, Uzhgorod, Ukraine. *Total amount: 300 UAH.*

2011 – 2013 **Scholarship** from the President of Ukraine for Young Scientists. *Total amount: 24,000 UAH.*

2007 – 2010      **PhD scholarship** from the French government. *Total amount: 24,600 EUR + tuition.*

## 5. PROFESSIONAL AFFILIATIONS AND ACTIVITIES

### *Professional Associations*

2019 – Present      Member of American Association of Physicists in Medicine  
2018 – Present      Member of Canadian Organization of Medical Physicists  
2015 – Present      Member of International Federation for Medical and Biological Engineering  
2015 – Present      Medical Physicists for the World Benefits  
2014 – Present      Member of Ukrainian Association of Medical Physicists and Engineers  
2013 – 2018      Investigator member in European Association for Cancer Research  
2012 – 2015      Member of Medipix micro-pixel detector test group  
2007 – 2014      LHCb/CERN official collaboration member

### *Peer Review Activities*

2020 – Present      Journal of Applied Clinical Medical Physics  
2020 – Present      Medical Physics  
2011 – Present      Ukrainian Journal of Physics

### *Other Research and Professional Activities*

2020 – Present      Member of AAPM work group WGTG-51: Review and Extension of External Beam Reference Dosimetry Protocols.  
2022 – Present      Member of AAPM Treatment Delivery Subcommittee (TDSC).  
2021 – Present      Member of Professional Affairs Committee at Canadian Organization of Medical Physicists.

## C. CLINICAL EXPERIENCE

### *External Beam Radiation Therapy*

- *Treatment planning systems:* Pinnacle, Monaco, Eclipse, GammaPlan;
- *Treatment modalities:* 3DCRT, IMRT, VMAT, IGRT, SBRT, SRS, electrons, orthovoltage, Gamma Knife;
- *Motion management:* AlignRT (VisionRT), 4DCT, breath-hold techniques;
- Development of quality control procedures and devices for MR-Linac;
- Plan and chart check;
- Developed guidelines for breast planning with segmented 18 MV fields;
- Photodynamic therapy.

### *Quality Assurance*

- Elekta (including Unity MR-Linac) and Varian linacs: monthly and annual;
- Philips and Siemens CT simulators: monthly, quarterly and annual;
- IMRT and VMAT PSQA with ArcCheck;
- Gamma Knife ICON: monthly and annual;
- IORT INTRABEAM system: weekly;
- Philips SPECT: daily and monthly;
- 0.35 T and 1.5 T MRI: daily, weekly and monthly;
- XStrahl orthovoltage: daily, monthly and annual.

### **Brachytherapy**

- *Treatment planning systems:* Oncentra (HDR Prostate and Gyne), MIM (LDR prostate);
- *Planning:* LDR prostate seed implants; HDR Prostate and GYNE (cylinder, multi-channel Miami applicator, Tandem + Ring, Tandem + Ovoid, interstitial applicators);
- *Quality assurance:* HDR post-source exchange QA, LDR <sup>125</sup>I source assay calibration, annual QA for prostate brachytherapy ultrasound system; annual QA for Gyne applicators;
- *Other:* commissioning of HDR Ring+Tandem applicators.

### **Commissioning**

- 2 Elekta Versa HD linacs;
- First in Canada Elekta Unity MR-Linac;
- Gamma Knife ICON (post-upgrade);
- Monaco TPS;
- Siemens C-Arm;
- 3D detector array for patient-specific QA (ArcCheck)

### **Implementation**

- Knowledge-based educational platform for planning and contouring within SBRT Program
  - SOPs development;
  - Established anonymization pipeline;
  - Planning protocols, guidelines and scorecards development;
- VMAT planning for late-stage lung cancer with the flattening filter-free beam.

## **D. ACADEMIC PROFILE**

### **1. RESEARCH STATEMENT**

My current research interests focus on improving precision, accuracy and safety of radiation therapy (RT) during treatment delivery by utilizing advanced detector systems or by developing new ones. In the recent years, I have also become interested in addressing challenges of a new technology as it transitions to the clinical setting by creating quality control devices to test critical elements in the patient treatment process. In addition, I am interested in designing experimental methods and devices for online dosimetry measurements during conventional external beam RT. I am also interested in improving dosimetric accuracy in MR-guided RT systems and evaluating online adaptive RT algorithms. Furthermore, I am interested in developing new technological solutions for providing accessibility to radiotherapy in low- and middle-income countries. In the last year, I have become interested in implementation of planning and contouring educational libraries in a cloud-based frameworks, particularly for training in SBRT treatment planning.

### **2. RESEARCH EXPERIENCE**

- |                |  |
|----------------|--|
| 2020 – 2021    | Leading technical development and implementation of a knowledge-based educational platform for SBRT program within Sunnybrook Health Sciences Centre. Application of statistical process control methods to trigger and guide output adjustment on the linear accelerator.   |
| 2018 – Present | Residency clinical research project: “Experimental quantification of ionization chamber response in a strong magnetic field of an MR-Linac”. Uncertainty budget has been evaluated for the parameters influencing the accuracy of reference dosimetry in MRgRT system. Best practice guidelines are currently in development.<br><br>Comparison of accuracy, calculation time and dose grid resolution in collapsed cone convolution/superposition and adaptive convolution superposition dose algorithms in Pinnacle TPS. Recommendation created and implemented in clinic at Odette Cancer Centre. |

- Development, prototyping and implementation of a MR-compatible quality control device for isoaxis measurement in bore-type gantry radiation treatment systems, including MR-Linac.
- 2017 – 2018 Conceptual design, radiation-shielding calculations, weight management, power consumption and cost assessment of modulated radiation therapy units for the low- and middle-income countries as a part of global cancer care project.
- 2016 – 2017 Development, optimization and prototyping of a photonic detector system for ultra-fast beam diagnostics in proton radiotherapy using scintillating plates with fast timing characteristics to detect the temporal fine structure of the beam. Monte Carlo simulations performed in Matlab and TOPAS.
- 2011 – 2014 Development and commissioning of a micro-strip metal detector (MSMD) for precise beam monitoring in multi-modality therapy beams at Heidelberg Ion Therapy Center (Germany), Institute for Nuclear Research (Ukraine) and Innovacia Cancer Centre (Ukraine). Evaluation of MSMD performance against metal mode of the Timepix and Medipix micro-pixel detectors.
- 2006 – 2010 Monte-Carlo simulations and data analysis of proton-proton collisions within Large Hadron Collider beauty (LHCb) experiment at CERN. Development and implementation of a radiation-hard beam monitoring system for silicon micro-strip detectors in the LHCb experiment at European Organization for Nuclear Research (CERN) to provide intensity and integral absorbed dose distribution measurements in real-time.

### 3. INTELLECTUAL PROPERTY

- 2020 **Disclosure:** Sunnybrook Research Institute (submitted). Iakovenko V and MacDonald L “Quality control device for radiation isoaxis verification”.
- 2017 **Disclosure:** UHN REF #2017-0499. Iakovenko V and Jaffray DA “Photonic position sensitive detector for time-structured radiation fields”.
- 2017 **Disclosure:** UHN REF #2017-0617. Iakovenko V, Rodin D, Jaffray DA “Radiation shielding design and calculation for high-dose rate brachytherapy vault within self-contained, modular and scalable cancer care ecosystem”.

### E. MANAGEMENT EXPERIENCE

- 2016 – 2018 **Project manager** for MR-guided Radiation Therapy facility at Princess Margaret Cancer Centre, University Health Network (UHN). Involved in transition of research space to clinic, development of MR-guided Radiation Therapy workflows, Risk Hazard Analysis (FMEA), commissioning of MR-compatible clinical devices, application of research study protocol amendments to the Research Ethics Board.
- Project coordinator** in Quantitative Imaging for Personalized Cancer Medicine program (UHN) dedicated to support international and multi-site clinical trials. Involved in development of comprehensive quality management system and regulatory documentation. Program’s point person for 6 national multi-institutional clinical studies, including 3 from Canadian Pulmonary Radiotherapy Investigators Group.
- Project coordinator** for CIHR-funded Quantitative Imagine Network R01 grant for image-based quantitative assessment of tumour hypoxia.

## F. PUBLICATIONS

### 1. PEER-REVIEWED PUBLICATIONS

#### *Journal Articles*

1. Kovalchuk N, Zelinskyi R, Hanych A *et al* [including **Iakovenko V**] Radiation Therapy Under the Falling Bombs: A Tale of 2 Ukrainian Cancer Centers. Volume 7, Issue 6, 101027.
2. Kovalchuk N, Beznosenko A, Kowalchuk R, Ryzhkova J, **Iakovenko V**, Kacharian A While Ukrainian Soldiers Are Fearlessly Defending Their Country, Ukrainian Oncologists Are Bravely Battling Cancer, *Advances in Radiation Oncology*, Volume 7, Issue 6, 100965.
3. **Iakovenko V** and Jaffray DA. Development of photonic detector system for ultra-fast beam diagnostics in proton radiotherapy: the proof of concept. *Journal of Physics: Conference Series*.2022. 2167 012030
4. **Iakovenko V**, Keller B, Sahgal A, Sarfehnia A. Experimental measurement of ionization chamber angular response and associated magnetic field correction factors in MR-linac. *Medical Physics*.2020;47(4):1940-1948.
5. D'Souza M, Nusrat H, **Iakovenko V**, Sahgal A, Renaud J, Sarfehnia A. Water calorimetry in MR-linac: Direct measurement of absorbed dose and absolute determination of chamber  $k_Q^{\text{mag}}$ . *Medical Physics*.2020;47(12):6458-6469.
6. **Iakovenko V**, Kovalchuk O, Okhrimenko O *et al*. Metal micro-detectors for imaging and beam profile monitoring in radiation therapy. *Bulletin of Taras Shevchenko National University of Kyiv*.2015;1(14).
7. Aaij R, Beteta C, Adeva B *et al*. [the LHCb collaboration, including **Iakovenko V**]. Measurement of the  $B_c^+$  meson lifetime using  $B_c^+ \rightarrow J/\psi \mu^+ \nu \mu X$  decays. *European Physics Journal C*.2014;74:2839.
8. **Iakovenko V**. Radiative penguin  $B^0 \rightarrow K^{*0} \gamma$  and  $B_s^0 \rightarrow \phi \gamma$  decays in LHCb experiment. *Scientific Bulletin of Uzhgorod University. Series Physics*.2014;35:118-122.
9. Aaij R, Beteta C, Adeva B *et al*. [the LHCb collaboration, including **Iakovenko V**]. First Evidence for the Decay  $B_s^0 \rightarrow \mu^+ \mu^-$ . *Physical Review Letters*.2013;110:021801.
10. Aaij R, Beteta C, Adeva B *et al*. [the LHCb collaboration, including **Iakovenko V**]. Implications of LHCb measurements and future prospects. *European Physical Journal C*.2013;73:2373.
11. Aaij R, Beteta C, Adeva B *et al*. [the LHCb collaboration, including **Iakovenko V**]. Measurement of  $B$  meson production cross-sections in proton-proton collisions at  $\sqrt{s} = 7$  TeV. *Journal of High Energy Physics*.2013;8:117.
12. Aaij R, Abellan C, Adametz A *et al*. [the LHCb collaboration, including **Iakovenko V**]. Measurement of the ratio of branching fraction  $B(B^0 \rightarrow K^{*0} \gamma)/B(B_s^0 \rightarrow \phi \gamma)$  and the direct CP asymmetry in  $B^0 \rightarrow K^{*0} \gamma$ . *Nuclear Physics B*.2013;867(1):1-18.
13. Aaij R, Abellan C, Adametz A *et al*. [the LHCb collaboration, including **Iakovenko V**]. Measurement of b-hadron branching fractions for two-body decays into charmless charged hadrons. *Journal of High Energy Physics*.2012;10:037.
14. Aaij R, Abellan C, Adametz A *et al*. [the LHCb collaboration, including **Iakovenko V**]. Absolute luminosity measurements with the LHCb detector at the LHC. *Journal of Instrumentation*. 2012;7:01010.
15. Aaij R, Abellan C, Adametz A *et al*. [the LHCb collaboration, including **Iakovenko V**]. Measurement of prompt hadron production ratios in pp collisions at  $\sqrt{s} = 0.9$  and 7 TeV. *European Physical Journal C*.2012;72:2168.
16. Aaij R, Abellan C, Adeva B *et al*. [the LHCb collaboration, including **Iakovenko V**]. Measurement of the ratio of branching fractions  $B(B^0 \rightarrow K^{*0} \gamma)/B(B_s^0 \rightarrow \phi \gamma)$ . *Physical Review D*.2012;85:112013.
17. Aaij R, Abellan C, Adeva B *et al*. [the LHCb collaboration, including **Iakovenko V**]. First observation of the decay  $B^+ \rightarrow \pi^+ \mu^+ \mu^-$ . *Journal of High Energy Physics*. 2012;12:125.
18. Aaij R, Abellan C, Adeva B *et al*. [the LHCb collaboration, including **Iakovenko V**]. Search for the rare decays  $B_s^0 \rightarrow \mu^+ \mu^-$  and  $B^0 \rightarrow \mu^+ \mu^-$ . *Physical Review B*. 2011;699:330-340.
19. **Iakovenko V**, Okhrimenko O, Pugatch V, Barsuk S, Schune MH. Selected physics measurements for the LHCb experiment and the radiation monitoring system. *Nuclear Physics and Atomic Energy*.2011;12(3):225-234.

20. Aaij R, Adeva B, Adinolfi M *et al.* [the LHCb collaboration, including **Iakovenko V**]. Measurement of the inclusive  $\phi$  cross-section in pp collisions at  $\sqrt{s} = 7$  TeV. *Physical Review B*. 2011;703:267-273.
21. Aaij R, Adeva B, Adinolfi M *et al.* [the LHCb collaboration, including **Iakovenko V**]. Measurement of  $J/\psi$  production in **pp** collisions at  $\sqrt{s} = 7$  TeV. *European Physical Journal C., Particles and Fields*. 2011;71:1645.
22. Aaij R, Adeva B, Adinolfi M *et al.* [the LHCb collaboration, including **Iakovenko V**]. Measurement of  $\sigma(\text{pp} \rightarrow b\bar{b} X)$  at  $\sqrt{s} = 7$  TeV in the forward region. *Physical Review B*. 2010;694:209-216.
23. Aaij R, Adeva B, Adinolfi M *et al.* [the LHCb collaboration, including **Iakovenko V**]. Search for the rare decays  $B^0_s \rightarrow \mu^+ \mu^-$  and  $B^0 \rightarrow \mu^+ \mu^-$ . *Physics Letters B*. 2011;699:330-340.
24. Aaij R, Adeva B, Adinolfi M *et al.* [the LHCb collaboration, including **Iakovenko V**]. Prompt  $K^0_S$  production in pp collisions at  $\sqrt{s} = 0.9$  TeV. *Physics Letters B*. 2010;693:69-80.
25. Voss H, Bay A, Blanc F *et al* [the Silicon Tracker group, including **Iakovenko V**]. Production, commissioning and first data of the LHCb silicon tracker. *NIM in Physics Research A*. 2010;612(3):430-463.
26. Fave V, Bay A, Blanc F *et al* [the Silicon Tracker group, including **Iakovenko V**]. First experience and results with the LHCb Silicon Tracker. *NIM in Physics Research A*. 2010;617(1):538-540.
27. Pugatch V, Pylypchenko Y, Okhrimenko O, **Iakovenko V**, Kyva V, Borysova M, Kovalchuk O, Mykhaylenko O. Radiation Monitoring System for LHCb Inner Tracker. *Ukrainian Journal of Physics*. 2009;54(4):418-425.
28. Alves A, Andrade L, B, Barbosa A *et al.* [the LHCb collaboration, including **Iakovenko V**]. The LHCb Detector at the LHC. *Journal of Instrumentation*. 2008;3 S08005:42-43.

## 2. NON-PEER-REVIEWED PUBLICATIONS

### Notes/reports of the LHCb collaboration:

1. **Iakovenko V**. Selection with the DC06 Monte Carlo of the radiative penguin decay  $B^0_s \rightarrow \phi \gamma$  at LHCb. LHCb-INT-2010-014.
2. Adeva B, Adinolfi M, Affolder A *et al.* [the LHCb collaboration, including **Iakovenko V**] Roadmap for selected key measurements of LHCb. CERN-LHCb-PUB-2009-029, arXiv:0912.4179.
3. Bernhald RP, Agari M, Bauer J *et al* [the Silicon Tracker group, including **Iakovenko V**] The LHCb Silicon Tracker. CERN-LHCb-2007-126.
4. Agari M, Bauer C, Blouw J *et al.* [the Silicon Tracker group, including **Iakovenko V**] The Radiation Monitoring System for the LHCb Inner Tracker. CERN-LHCb-2007-062.

## 3. SUBMITTED PUBLICATIONS/ARTICLES IN PROGRESS

1. Addendum to the AAPM's TG-51 protocol for clinical reference dosimetry of high-energy electron beams. WGTG51 group report.
2. **Iakovenko V**, D'Souza M, Sahgal A, Keller B, Sarfehnia A. Quantifying Uncertainties for Reference Dosimetry in an MR-Linac.
3. Balushi M, Beckett M, Chan J, **Iakovenko V**, Roumeliotis M, Hanna T, Huang F, Barkati M, Rodin D, Bourque JM. Pan-Canadian Survey of Radiation Oncology Professional Involvement in Global Oncology Initiatives in Low- and Middle-Income Countries.

## G. INVITED TALKS

- 2019 Nov 18      **Invited speaker.** Linac calibration and quality assurance in MR-Linac. Princess Margaret Cancer Centre, Toronto, Canada.
- 2019 Oct 26      **Invited speaker.** Pan-Canadian Global Oncology Survey. Department of Radiation Oncology at

University of Toronto, Canada.

- 2018 Nov 12 **Invited speaker.** Beam diagnostics in hadron therapy. Princess Margaret Cancer Centre, Toronto, Canada.
- 2016 Nov 7 **Invited speaker.** Online beam monitoring in radiation therapy. Princess Margaret Cancer Centre, Toronto, Canada.
- 2014 Jun 4 **Invited speaker.** Radiative decays of heavy mesons in the LHCb experiment. Presidium of National Academy of Sciences of Ukraine, Kyiv, Ukraine.

## H. CONFERENCE PRESENTATIONS

### *Oral presentations*

- 2019 **Iakovenko V**, Keller B, Sahgal A, Sarfehnia A. Measurement of ionization chamber angular response and associated uncertainty budget analysis in MRLinac reference dosimetry. COMP Annual Scientific Meeting, Kelowna, BC, Canada, September 24-27.
- 2019 **Iakovenko V**, Keller B, Sahgal A, Sarfehnia A. Measurement of ionization chamber angular response to magnetic field in an MRLinac. AAPM Annual Scientific meeting. San Antonio, TX, USA, July 14-18.
- 2018 **Iakovenko V**, Yeung I, Driscoll B, Shek T, Leong W, Coolens C, Keller H, Vines D, S. Menezes, Brzozowski L, Publicover J, Jaffray DA. QIPCM Imaging Core Lab – a Robust Solution for Multi-Center Clinical Trials. Accelerating Precision Medicine, Toronto, Canada, January 19.
- 2016 Storozhyk D, Momot E, Kovalchuk O, Okhrimenko O, **Iakovenko V**, Prezado Y, Pugatch V. Formation and monitoring of mini-beam structures for spatially fractionated radiation therapy. Kiev Institute for Nuclear Research: Annual scientific conference, Kyiv, Ukraine, February 1-5.
- 2015 **Iakovenko V**, Brons S, Campbell M, Kovalchuk O, Llopart X, Martínez-Rovira I, Pospisil S, Pugatch V, Prezado Y, Sorokin Y. New Detector Systems for the Dosimetry in Radiation Therapy. IUPESM 2015: World Congress on medical physics and biomedical engineering, Toronto, Canada, June 7-12.
- 2015 **Iakovenko V**, Kovalchuk O, Sorokin Y, Pugatch V, Okhrimenko V, Prezado Y, Martínez-Rovira I. Metal micro-detectors for imaging and beam profile monitoring in radiation therapy. Kiev Institute for Nuclear Research: Annual scientific conference, Kyiv, Ukraine, January 26-30.
- 2014 Ilyukhina A, Pugatch V, **Iakovenko V**, Storozhyk D, Kovalchuk O. Micro-detectors for beam monitoring in hadron radiation therapy. Kiev Institute for Nuclear Research: Annual scientific conference, Kyiv, Ukraine, January 27-31.
- 2014 Kostyuk I, Pugatch V, Verbytsky A, Okhrimenko O, **Iakovenko V**. Reconstruction of  $B_s^0 \rightarrow J/\psi \phi$  decay in LHCb experiment. Kiev Institute for Nuclear Research: Annual scientific conference, Kyiv, Ukraine, January 27-31.
- 2014 Okhrimenko O, Pugatch V, **Iakovenko V**. Oscillation frequency measurement of  $B^0$  and  $B_s^0$  mesons in LHCb experiment. Kiev Institute for Nuclear Research: Annual scientific conference, Kyiv, Ukraine, January 27-31.
- 2014 Pugatch M, Grania C, Campbell M, Kyva V, Kovalchuk O, Llopart X, Militsia V, Okhrimenko O, Pavlenko Y, Pospisil S, Pugatch V, Storozhyk D, **Iakovenko V**. Software for data analysis of a three-particle reaction  $^{11}\text{B}(p, 3\alpha)$ . Kiev Institute for Nuclear Research: Annual scientific conference, Kyiv, Ukraine, January 27-31.
- 2014 **Iakovenko V**, Okhrimenko O, Pugatch V. First observation of  $B_c^+ \rightarrow J/\psi K^+ K \pi^+$  decay in LHCb experiment. Kiev Institute for Nuclear Research: Annual scientific conference, Kyiv, Ukraine, January 27-31.
- 2014 **Iakovenko V**, Kovalchuk O, Sorokin Y, Pugatch P, Okhrimenko O, Ilyukhina A, Martínez-Rovira I, Prezado Y. Metal micro-detectors for imaging and beam profile monitoring in radiation therapy. IV International Conference: Medical Physics – the current status, problems and development directions. New technologies, Kyiv, Ukraine, October 23-24. (award for the best oral presentation)
- 2014 Ilyukhina A, Pugatch V, **Iakovenko V**, Storozhyk D, Kovalchuk O. Micro-detectors for beam monitoring in hadron radiation therapy. IV International Conference: Medical Physics – the current status, problems and development directions. New technologies, Kyiv, Ukraine, October 23-24.
- 2014 **Iakovenko V** (on behalf of LHCb collaboration). Rare decays of heavy hadrons at LHCb. 5<sup>th</sup> International Conference: Current Problems in Nuclear Physics and Atomic Energy, Kyiv, Ukraine, June 3-13.



- 2013 **Iakovenko V**, Okhrimenko O, Pugatch V. Physics of heavy hadrons at Large Hadron Collider. Radiative  $B^0 \rightarrow K^{*0} \gamma$  and  $B_s^0 \rightarrow \phi \gamma$  in LHCb experiment. International Conference for Young Scientists and PhD students, Uzhgorod, Ukraine, May 20-23. (award for the best oral presentation)
- 2013 **Iakovenko V** (on behalf of KINR R&D group). Development and Application of New Detector Systems for Dosimetry in Radiation Therapy. Workshop: The future of radiation oncology: Imaging, Dosimetry and Therapy. Berder island, France, September 25-28.
- 2013 **Iakovenko V**, Okhrimenko O, Pugatch V. Radiative  $B^0 \rightarrow K^{*0} \gamma$  and  $B_s^0 \rightarrow \phi \gamma$  decays in LHCb experiment. Kiev Institute for Nuclear Research: Annual scientific conference, Kyiv, Ukraine, January 28-February 1.
- 2013 Pugatch M, Grania C, Campbell M, Kyva V, Kovalchuk O, Llopart X, Militsia V, Okhrimenko O, Pavlenko Y, Pospisil S, Pugatch V, Storozhyk D, **Iakovenko V**. 7D methodology to investigate multi-particle nuclear reactions. Kiev Institute for Nuclear Research: Annual scientific conference, Kyiv, Ukraine, January 28-February 1.
- 2013 Okhrimenko O, Pugatch V, **Iakovenko V**. Radiation monitoring system in LHCb experiment: assessing radiation damages of the inner silicon tracker. Kiev Institute for Nuclear Research: Annual scientific conference, Kyiv, Ukraine, January 28-February 1.
- 2012 **Iakovenko V** (on behalf of LHCb collaboration). Rare  $B$  decays at LHCb experiment. 4<sup>th</sup> International Conference: Current Problems in Nuclear Physics and Atomic Energy, Kyiv, Ukraine, September 10-14.
- 2012 Okhrimenko O, **Iakovenko V**, Pugatch V, Alessio F, Corti G. Radiation monitoring system of the LHCb Inner Tracker in 2012 operation year. 4<sup>th</sup> International Conference: Current Problems in Nuclear Physics and Atomic Energy, Kyiv, Ukraine, September 10-14.
- 2012 **Iakovenko V**, Okhrimenko O, Pugatch V. Radiative  $B^0 \rightarrow K^{*0} \gamma$  and  $B_s^0 \rightarrow \phi \gamma$  decays in LHCb experiment. 10<sup>th</sup> conference on high energy physics, nuclear physics and accelerators. Kharkiv, Ukraine, February 23-27.
- 2012 Okhrimenko O, Pugatch V, **Iakovenko V**. Radiation monitoring system for Inner Tracker of LHCb experiment. 10<sup>th</sup> conference on high energy physics, nuclear physics and accelerators. Kharkiv, Ukraine, February 23-27.
- 2010 **Iakovenko V**, Pugatch V.  $B_s^0 \rightarrow \phi \gamma$  radiative decay in LHCb Experiment. 3<sup>rd</sup> International Conference: Current Problems in Nuclear Physics and Atomic Energy, Kyiv, Ukraine, June 7-12.
- 2010 Okhrimenko O, Pugatch V, **Iakovenko V**. Fluences of charged particles in proton-proton interactions at 7 TeV in LHCb experiment. 3<sup>rd</sup> International Conference: Current Problems in Nuclear Physics and Atomic Energy, Kyiv, Ukraine, June 7-12.
- 2010 **Iakovenko V** (on behalf of LHCb collaboration). Selection of the radiative penguin decay  $B_s^0 \rightarrow \phi \gamma$  at LHCb experiment. Kiev Institute for Nuclear Research: Annual scientific conference, Kyiv, Ukraine, January 26-29.
- 2008 **Iakovenko V** (on behalf of LHCb collaboration). Study of the decay  $B_s^0 \rightarrow \phi \gamma$  with the LHCb experiment. 17<sup>th</sup> Annual Conference of Doctoral Students, Prague, Czech Republic, June 3-6.
- 2007 **Iakovenko V**, Pugatch V. Radiation Monitoring System for LHCb experiment. French-Ukrainian School of High Energy Physics, Mukachevo, Ukraine, 9–14 June.

**Poster presentations**

- 2021 **Iakovenko V**, Jaffray DA. Development of detector for ultra-fast beam diagnostics in proton radiotherapy. IC3DDose, May 10-14.
- 2021 Nusrat H, **Iakovenko V**, Keller B, Sarfehnia A. Examining the Impact of Calibration Conditions in a 1.5 T MR-Linac. IC3DDose, May 10-14.
- 2020 **Iakovenko V**, Keller B, Nusrat H, Sahgal A, Sarfehnia A. Towards best practice guidelines for reference dosimetry in 1.5 T MR-Linac. Joint AAPM/COMP Virtual Meeting (Blue Ribbon ePoster Presentation), July 12-16.
- 2020 **Iakovenko V**, Roumeliotis M, Chan J, Goulart J, Hanna TP, Huang F, Kuk J, Liu W, Bourque JM, Rodin D. Pan-Canadian Survey of Radiation Oncology Professional Involvement in Cancer Control Projects in Low-Income and Middle-Income Countries. Joint AAPM/COMP Virtual Meeting (ePoster Presentation), July 12-16.
- 2020 D'Souza M, Nusrat H, **Iakovenko V**, Renaud J, Sarfehnia A. Optimization and construction of a glass vessel and MR-compatible water calorimeter for use in clinical photon and electron beams. Joint AAPM/COMP Virtual Meeting (ePoster Presentation), July 12-16.
- 2020 Keller B, Kim A, **Iakovenko V**, Ruschin M, McCann C, Beachey D, Chugh B, Elzibak A, Sahgal A, Sarfehnia A.

- Performance characterization of a clinical 1.5 T MR-Linac. Joint AAPM/COMP Virtual Meeting (ePoster Presentation), July 12-16.
- 2020 **Iakovenko V**, Roumeliotis M, Chan J, Goulart J, Hanna TP, Huang F, Kuk J, Liu W, Bourque JM, Rodin D. Pan-Canadian Survey of Radiation Oncology Professional Involvement in Cancer Control Projects in Low-Income and Middle-Income Countries. Research day in Department of Radiation Oncology at University of Toronto.
- 2019 **Iakovenko V**, Jaffray DA. Development of detector for ultra-fast beam diagnostics in proton radiotherapy. AAPM Annual Scientific meeting, San Antonio, TX, USA, July 14-18.
- 2019 **Iakovenko V**, Keller B, Paterson G, Sahgal A, Sarfehnia A. Quantification of ionization chamber response in 1.5 T magnetic field with 7 MV FFF beam. Research day in Department of Radiation Oncology at University of Toronto, May 9.
- 2019 **Iakovenko V**, Rodin D, Jaffray DA. Pioneering Action in Global Cancer Care. ICEC Young Investigators' Conference: Pioneering Action for Global Cancer Care, Washington D.C., USA, February 14-15.
- 2018 Rodin D, **Iakovenko V**, Jaffray DA. BOXcare: a blue ocean approach to radiotherapy delivery. Toronto Global Cancer Control Conference, March 1-3.
- 2018 **Iakovenko V**, Yeung I, Driscoll B, Publicover J, Shek T, Leong W, Coolens C, Keller H, Vines D, Brzozowski L, Jaffray DA. QIPCM Imaging Core Lab – a Robust Solution for Multi-Center Clinical Trials. Imaging Network Ontario Symposium, Toronto, Canada, May 28-29.
- 2016 Chaus A, Brons S, Campbell M, Granja C, **Iakovenko V**, Kovalchuk O, Cudie XL, Martínez-Rovira I, Momot E, Pospisil S, Prezado Y, Pugach V, Sorokin I. Monitoring and Imaging of the Hadron Mini-Beams for Spatially Fractionated Radiation Therapy. IEEE Nuclear Science Symposium and Medical Imaging Conference, Strasbourg, France, October 29-November 5.
- 2014 **Iakovenko V**, Okhrimenko Y, Pugatch V. Observation of the decay  $B_c^+ \rightarrow J/\psi K^+ \pi^+$  in LHCb experiment. 5<sup>th</sup> International Conference: Current Problems in Nuclear Physics and Atomic Energy, Kyiv, Ukraine. June 3-13.
- 2013 **Iakovenko V**, Okhrimenko O, Kovalchuk O, Pugatch V, Chaus A, Fedorovich O, Storozhyk D, Campbell M, Tlustos L, Llopart X, Pospisil S, Prezado Y, Renier M. Metal micro-detectors for Radiation Therapy. 13<sup>th</sup> International school for young scientists: Problems of fundamental and applied radiobiology. Obninsk, Russian Federation, May 27-31.
- 2006 **Iakovenko V**, Pugatch V. Multi-layer Metal-Foil Detector for Monitoring of Integrated Particle Fluxes at the LHCb Experiment. International Conference: Current Problems in Nuclear Physics and Atomic Energy, Kyiv, Ukraine, May 29-June 3.

## I. TEACHING EXPERIENCE

- 2022 – Present **Lecturer** within University of Texas Southwestern Medical Center. Fundamentals of Imaging course. Radiation Protection and Radiation Safety course.
- 2022 – Present **Mentor** in physics residency program within University of Texas Southwestern Medical Center.
- 2020 – 2021 **Examiner** within University of Toronto physics residency program at Odette Cancer Centre.
- 2018 – 2020 **Teaching assistance**. RBRT310/MRS143H1 – Radiobiology and radiation protection. University of Toronto.
- 2011 – 2014 **Teaching assistance**. Undergraduate course: Nuclear reactions. Physics Department at Taras Shevchenko National University of Kyiv, Ukraine.
- Jan. 2014 **Lecturer**. Graduate course in high energy physics: Application of micro-pixel detectors for precise beam monitoring. Physics Department at Taras Shevchenko National University of Kyiv, Ukraine.
- Nov. 2013 **Lecturer**. Graduate course in high energy physics: Rare  $B$ -meson decays in LHCb experiment. Physics Department at Taras Shevchenko National University of Kyiv, Ukraine.

## J. RESEARCH SUPERVISION

### *Undergraduate Education*

- 2013 – 2014      **Collaborator.** B. Sc. Anastasia Illyukhina, Taras Shevchenko National University of Kyiv, Ukraine. *Micro-detectors in hadron radiation therapy.*
- 2013 – 2014      **Collaborator.** B. Sc. Igor Kostyuk, Taras Shevchenko National University of Kyiv, Ukraine. *Reconstruction of  $B_s^0 \rightarrow J/\psi\phi$  decay and enhanced with MediPix detectors radiation monitoring system in LHCb experiment.*
- 2011 – 2012      **Collaborator.** B. Sc. Yaroslav Nikolajko, Taras Shevchenko National University of Kyiv, Ukraine. *Application of TimePix micro-pixel detector for neutron registration.*

## K. OTHER VOLUNTARY ACTIVITIES

- 2022 – Present      Member in the Help Ukraine Group (HUG). Support of oncology professionals from Ukraine in the wartime.
- 2016 – 2017      Member of a work group of Ukrainian medical physicist and scientists to assess the need for a professional body that would coordinate training curriculum modification for medical physicists. As a result of this activity, a Ukrainian Association of Medical Physicists was created in 2017.
- 2015      Volunteer at Princess Margaret Cancer Centre. Research support in medical physics department.
- 2010 – 2014      Deputy head in Council of Young Scientists' at Kiev Institute for Nuclear Research.
- 2004 – 2006      Member in Students' Council at Taras Shevchenko National University of Kyiv.

## L. REFERENCES

Available upon request.