

# David Parsons, PhD, DABR

UT Southwestern Medical Center, 2280 Inwood Rd., Dallas, TX, 75390-9303

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## Employment

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### Assistant Professor

*University of Texas Southwestern Medical Center,*  
Associate Directory of the Medical Physics Residency  
Lead Physicist for the Breast Disease Oriented Team  
Lead Physicist for Surface Guided Radiotherapy

**Dallas, TX**  
*July 2020–Present*

### Adjunct Professor

*Dalhousie University*

**Halifax, Nova Scotia**  
*October 2021–Present*

### Chief Medical Physics Resident

*University of Texas Southwestern Medical Center*

**Dallas, TX**  
*July 2019–June 2020*

### Medical Physics Resident

*University of Texas Southwestern Medical Center*

**Dallas, TX**  
*July 2017–June 2019*

### Medical Physics Assistantship

*Nova Scotia Health Authority*

**Halifax, Nova Scotia**  
*September 2012–December 2015*

### Teaching Assistantship

*Dalhousie University*

**Halifax, Nova Scotia**  
*September 2010–August 2012*

## Education

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### Doctor of Philosophy, Medical Physics

*Dalhousie University,*

*Thesis: Volume-of-interest imaging for image guided radiotherapy*

Supervisor: James Robar, PhD, FCCPM

**Halifax, Nova Scotia**  
*2012–2017*

### Master of Science, Physics

*Dalhousie University,*

*Thesis: The production and detection of optimized Low-Z linear accelerator target beams for image guidance in radiotherapy*

Supervisor: James Robar, PhD, FCCPM

**Halifax, Nova Scotia**  
*2010–2012*

## Bachelor of Science with Honours in Physics

Acadia University,

*Thesis: An investigation of the effects of Sn alloying additions in the Ni-Mn-Ga ferromagnetic shape memory alloy system*

Supervisor: Craig Bennett, PhD

Wolfville, Nova Scotia

2006–2010

## Certification and Licensure

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American Board of Radiology

United States of America

2021–Present

Medical Physicist License, State of Texas

FMP02000214

Dallas, TX

2017–Present

## Clinical Trials

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1. Principal investigator for *VisionRT-based Deep Inspiration Breath-hold (DIBH) Respiratory Motion Management Strategy, A Pilot Study for Thoracic and Abdominal Tumors Stereotactic Body Radiotherapy*, UT Southwestern Medical Center and Vision RT Inc.; \$154k, 2021-present
2. Co-investigator for *Vision RT Collision Camera Study*, UT Southwestern Medical Center and Vision RT Inc.; 2022-present

## Grants, Awards and Scholarships

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1. UT Southwestern Medical Physics Educator of the Year, 2022
2. Doctoral Research Award, Canadian Institutes of Health Research and Canadian Nuclear Safety Commission; \$105k, 2014-7
3. Izaak Walton Killam Award; Killam Trusts; \$75k, 2013-7
4. Postgraduate Scholarships Master's (PGS-M), Natural Sciences and Engineering Research Council of Canada; \$17.5k, 2011-2

## Peer-Reviewed Articles

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\* denotes co-first authors

1. **D. Parsons**, T. Y. Lim, J. R. Teruel, S. Agostinelli, J. Liang, P. Mancosu, A. Cherpak, D. N. Stanley, K.H. Ahn, B. Guo, Y. Gonzalez, J. Burmeister, J. Y.C. Wong X. Gu, G. G.Y. Kim, *Considerations for intensity modulated total body or total marrow and lymphoid irradiation, Practical Radiation Oncology, submitted*
2. J. Visak, E. Inam, B. Meng, S. Wang, **D. Parsons**, D. Nyugen, T. Zhang, D. Moon, V. Avkshtol, S. Jiang, D. Sher, and M. Lin, *Evaluating machine learning enhanced intelligent-optimization-engine (IOE) performance for ethos head-and-neck (HN) plan generation, Journal of Applied Clinical Medical Physics, in press*

3. C. Shen, L. Chen, X. Zhong, Y. Gonzalez, J. Visak, B. Meng, E. Inam, **D. Parsons**, A. Godley, S. Jiang, B. Cai and M. Lin, *Clinical Experience on Patient-Specific Quality Assurance for CBCT-based Online Adaptive Treatment Plan*, *Journal of Applied Clinical Medical Physics*, in press
4. **D. Parsons**, M. Joo, Z. Iqbal, A. Godley, N. Kim, A. Spangler, K. Albuquerque, A. Sawant, B. Zhao, X. Gu A. Rahimi, *Stability and reproducibility comparisons between deep inspiration breath-hold techniques for left-sided breast cancer patients*, *Journal of Applied Clinical Medical Physics*, in press
5. C. Church, R.L. MacDonald, **D. Parsons**, A. Syme, *Evaluation of Plan Quality and Treatment Efficiency in Virtual Isocentre Cranial SRS Treatment Plans*, *Journal of Applied Clinical Medical Physics*, in press
6. S. All, B. Zhao, S. Montalvo, C. Maxwell, C. Johns, X. Gu, A. Rahimi, P. Alluri, **D. Parsons**, T. Chiu, S. Schroeder, N. Kim, *Feasibility and Efficacy of Active Breathing Coordinator (ABC) Assisted Deep Inspiration Breath Hold (DIBH) Technique for Treatment of Locally Advanced Breast Cancer*, *Journal of Applied Clinical Medical Physics*, 24(2), 2023, e13893
7. S. Montalvo, N. Kim, C. Nwachukwu, P. Alluri, **D. Parsons**, M. Lin, B. Cai, T. Zhuang, B. Hrycushko, L. Chen, R. Timmerman, A. Rahimi, *On the feasibility of improved target coverage without compromising organs at risk using online adaptive stereotactic partial breast irradiation (A-SPBI)*, *Journal of Applied Clinical Medical Physics*, 24(2), 2023
8. Z. Xiong, Y. Zhong, T. I. Banks, R. Reynolds, T. Chiu, J. Tan, Y. Zhang, **D. Parsons**, Y. Yan, A. Godley, S. Stojadinovic, *Machine characterization and central axis depth dose data of a superficial x-ray radiotherapy unit*, *Biomedical Physics & Engineering Express*, 9(1), 2023, 015005
9. C. Church, **D. Parsons**, A. Syme, *Region-of-interest intra-arc MV imaging to facilitate sub-mm positional accuracy with minimal imaging dose during treatment deliveries of small cranial lesions*, *Journal of Applied Clinical Medical Physics*, 23(11), 2022, e13769
10. E. Hsu, **D. Parsons**, T.D. Chiu, A. Godley, D.J. Sher, D. Vo, *3D printed integrated bolus/headrest for radiation therapy for malignancies involving the posterior scalp and neck*, *3D Printing in Medicine*, 8(1):22, 2022, 1-8
11. E. Zhang-Velten, Y. Zhang, S. Radpour, X. Gu, N. Kim, P. Alluri, C. Nwachukwu, T. Chiu, W. Lu, **D. Parsons**, J. Tan, J. Gillespie, S. Stevenson, H. Choy, R. Timmerman, A. Rahimi, *A How-to compendium for Gammapod treatments, Clinical workflow, and Clinical Program at an early adapting Institution*, *Practical Radiation Oncology*, 12(3), 2022, e177-82
12. E. Zhang-Velten\*, **D. Parsons\***, P. Lee, E. Chambers, R. Abdulrahman, N.B. Desai, T. Dan, Z. Wardak, R. Timmerman, M. Vusirikala, P. Patel, T. Simms-Waldrip, V. Aquino, A. Koh, J. Tan, Z. Iqbal, Y. Zhang, R. Reynolds, T. Chiu, M. Joo, B. Hrycushko, L. Ouyang, R. Lamphier, Y. Yan, S.B. Jiang, K.A. Kumar, X. Gu, *Volumetric modulated arc therapy based total body irradiation (VMAT-TBI): six-year clinical experience and treatment outcomes*, *Transplantation and Cellular Therapy*, 28(2), 2022, 113e1-8
13. C. Church, **D. Parsons**, A. Syme, *Investigating the Impacts of Intrafraction Motion on Dosimetric Outcomes When Treating Small Targets With Virtual Cones*, *Journal of Applied Clinical Medical Physics*, 22(8), 2021, 60-71

14. T. Chiu, Z. Xiong, **D. Parsons**, M. R. Folkert, P. Medin, B. Hrycushko, *Low-cost 3D print-based phantom fabrication to facilitate interstitial prostate brachytherapy training program*, *Brachytherapy*, 19(6), 2020, 800-11
15. **D. Parsons**, Y. Zhang, X. Gu, W. Lu, *POD-DOSI: A Dedicated Dosimetry System for GammaPod Commissioning and Quality Assurance*, *Medical Physics*, 47(8), 2020, 3647-57
16. C. Ma, **D. Parsons**, M. Chen, S. Jiang, X. Gu, Q. Hou, W. Lu, *Electron modulated arc therapy (EMAT) using photon MLC: I. Dosimetric characteristics based on Monte Carlo simulations*, *Physica Medica*, 67(1), 2019, 1-8
17. **D. Parsons**, C. Church and A. Syme, *Toward a pre-clinical irradiator using clinical infrastructure*, *Physica Medica*, 58(1), 2019, 21-31
18. J. D. Lincoln, **D. Parsons**, S. E. Clarke, S. Cwajna, J. L. Robar, *Technical Note: Evaluation of kV CBCT enhancement using a liver specific contrast agent for stereotactic body radiation therapy image guidance*, *Medical Physics*, 46(3), 2019, 1175-81
19. Y. Zhang, M. R. Folkert, B. Li, X. Huang, J. Meyer, T. Chiu, P. Lee, J. Tehrani, J. Cai, **D. Parsons**, X. Jia, J. Wang, *4D Liver Tumor Localization using Cone-Beam Projections and a Biomechanical Model*, *Radiotherapy and Oncology*, 133, 2019, 183-92
20. C. Ma, M. Chen, T. Long, **D. Parsons**, X. Gu, S. Jiang, Q. Hou, W. Lu, *Flattening filter free in intensity modulated radiotherapy (IMRT) – theoretical modeling with delivery efficiency analysis*, *Medical Physics*, 46(1), 2018, 34-44
21. T. D. Chiu\*, **D. Parsons\***, Y. Zhang, B. Hrycushko, B. Zhao, R. Chopra, N. Kim, A. Spangler, A. Rahimi, R. Timmerman, S. B. Jiang, W. Lu, and X. Gu, *Prototype volumetric ultrasound tomography image guidance system for prone stereotactic partial breast irradiation: Proof-of-concept*, *Physics in Medicine and Biology*, 63(5), 2018, 055004
22. **D. Parsons**, M.T.R. Stevens and J. L. Robar, *Current modulated volume-of-interest imaging for kilovoltage intrafraction monitoring of the prostate*, *Medical Physics*, 44(4), 2017, 1479-93
23. M.T.R. Stevens, **D. Parsons**, and J. L. Robar, *Patient specific methods for room-mounted x-ray imagers for monoscopic/stereoscopic prostate motion monitoring*, *J Appl Clin Med Phys*, 18(4), 2017, 40-50
24. M.T.R. Stevens, **D. Parsons**, and J. L. Robar, *Continuous monitoring of prostate position using stereoscopic and monoscopic kV image guidance*, *Medical Physics*, 43(5), 2016, 2558-68
25. **D. Parsons** and J. L. Robar, *Volume of interest CBCT and tube current modulation for image guidance using dynamic kV collimation*, *Medical Physics*, 43(4), 2016, 1808-17
26. R. Berbeco, **D. Parsons**, M. Yewondwossen, A. Detappe, P. Tsiamas and J. L. Robar, *Low-Z target switching to increase tumor endothelial cell dose enhancement during gold nanoparticle-aided radiation therapy*, *Medical Physics*, 43(1), 2016, 436-42
27. **D. Parsons** and J. L. Robar, *An investigation of kV CBCT image quality and dose reduction for volume-of-interest imaging using dynamic collimation*, *Medical Physics*, 42(9), 2015, 5258-69
28. **D. Parsons**, J. L. Robar and D. Sawkey, *A Monte Carlo investigation of Low-Z target image quality generated in a linear accelerator using Varian's VirtuaLinac*, *Medical Physics*, 41(2), 2014, 021719

29. **D. Parsons** and J. L. Robar, *The effect of copper conversion plates on Low-Z target image quality*, Medical Physics, 39(9), 2012. 5362-71
30. **D. Parsons** and J.L. Robar, *Beam generation and planar imaging at energies below 2.40 MeV with carbon and aluminum linear accelerator targets*, Medical Physics, 39(7), 2012, 4568-78
31. J. L. Robar, **D. Parsons**, A. Berman and A. MacDonald, *Volume-of-interest cone-beam CT using a 2.35 MV beam generated with a carbon target*, Medical Physics, 39(7), 2012, 4209-18

## Presentations and Posters

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### Invited Oral Presentations.....

1. **D. Parsons**, *Enhancing Patient Experience: A Multi-Treatment Site Transition*, SGRT: Uncovering the Future of Motion Management, June 2022, Washington, DC
2. **D. Parsons**, C. Ding, B. Zhao, T. Chiu, L. Tirpak, R. Reynolds, Y. Park, Y. Yan, S. Jiang and X. Gu, *Improving Patient Safety: Building a Stringent Stereotactic Program*, QA Today, April 2021, Dallas, Tx
3. **D. Parsons**, C. Ding, B. Zhao, T. Chiu, L. Tirpak, R. Reynolds, Y. Park, Y. Yan, S. Jiang and X. Gu, *Film-less Stereotactic End-to-End Testing, including Non-coplanar Beams*, ASTRO 2019 - Sun Nuclear Sponsored Presentation, September 2019, Chicago, IL
4. **D. Parsons**, C. Ding, B. Zhao, T. Chiu, L. Tirpak, R. Reynolds, Y. Park, Y. Yan, S. Jiang and X. Gu, *Film-less Stereotactic End-to-End Testing, including Non-coplanar Beams*, 2019 AAPM Sun Nuclear Lunch Symposium, July 2019, San Antonio, TX
5. **D. Parsons**, J.L. Robar and D. Sawkey, Monte Carlo investigation of Low-Z targets in a TrueBeam linear accelerator using Varian's Virtualinac, Varian Research Partnership Symposium, March 2013, Atlanta, GA

### Other Oral Presentations.....

1. R. Ravella, E. Zhang-Velten, **D. Parsons**, N. Desai, T. Dan, R. Timmerman, S. Jiang, X. Gu, and K. Kumar *Volumetric Modulated Arc Therapy Enabled Total Body Irradiation (VMAT-TBI) vs. Conventional TBI (cTBI): A Comparison of Treatment Outcomes and Toxicities*, ASTRO 2022, October 2022, San Antonio, TX
2. C. Church, **D. Parsons** and A. Syme, *Sub-mm Positioning Accuracy Using MV Arc-based Imaging for Virtual Isocenter Treatments*, 65th Annual Meeting of the Canadian Organization of Medical Physicists and the Canadian College of Physicists in Medicine, September 2019, Kelowna, Canada
3. J. Tan, **D. Parsons**, P. Lee and X. Gu, *Auto-VMAT-TBI: An Automatic Treatment Planning Software Platform for Volumetric Modulated Arc Therapy-Enabled Total Body Irradiation*, 61th Annual Meeting of the American Association of Physicists in Medicine, July 2019, San Antonio, TX
4. W. Lu, M. Chen, N. Salehi, Y. Zhang, **D. Parsons**, S. Jiang and X. Gu, *Independent Dose Calculation for GammaPod Treatment*, 61th Annual Meeting of the American Association of Physicists in Medicine, July 2019, San Antonio, TX

5. T. Chiu, **D. Parsons**, F. Kalantari, S. Stojadinovic, *Motion Tracking Quality Assurance Platform for Leksell Gamma Knife HDMM System*, 61th Annual Meeting of the American Association of Physicists in Medicine, July 2019, San Antonio, TX
6. T. Chiu, H. Liu, M. Joo, **D. Parsons**, K. Kumar, T. Dan, S. Jiang and X. Gu, *Pediatric Radiation Oncology with Movie Induced Sedation Effect (PROMISE) Radiation Therapy*, 61th Annual Meeting of the American Association of Physicists in Medicine, July 2019, San Antonio, TX
7. Y. Zhang, W. Lu, N. Salehi, **D. Parsons**, R. Reynolds, S. Stojadinovic, S. Jiang and X. Gu, *Commissioning of a Noninvasive Breast Stereotactic Body Radiation Therapy Platform: GammaPod*, 61th Annual Meeting of the American Association of Physicists in Medicine, July 2019, San Antonio, TX
8. **D. Parsons**, T. Chiu, Y. Zhang, W. Lu, S. Jiang and X. Gu, *PodPhantom: A Robotic Prototype Dosimetric Data Collection System for GammaPod*, 61th Annual Meeting of the American Association of Physicists in Medicine, July 2019, San Antonio, TX
9. M.N. Ha, O. Piccolo, N. Melong, **D. Parsons**, A. Detappe, O. Tillement, R. I. Berbeco, J. N. Berman, J. L. Robar, *OC-0055 Zebrafish model to study the use of nanoparticles as a radiosensitizer in low Z target beams*, ESTRO 38, Radiotherapy and Oncology 133(S1), 2019, S20-1
10. **D. Parsons**, T. Chiu, R. Chopra, W. Lu, S. Jiang and X. Gu, *WE-AB-KDBRB1-3: Development of a Robotic Prototype Ultrasound Tomography System for Image Guided Prone Breast SBRT*, 60th Annual Meeting of the American Association of Physicists in Medicine, August 2018, Nashville, TN
11. C. Ma, **D. Parsons**, M. Chen, X. Gu and W. Lu, *TU-K-KDBRC-5: Modulated Electron Arc Therapy (MEAT) with 3D Bolus and Photon MLC for Chest Wall Radiotherapy*, 60th Annual Meeting of the American Association of Physicists in Medicine, August 2018, Nashville, TN
12. **D. Parsons**, M.T.R. Stevens and J. L. Robar, *TH-AB-205-4: Current modulated volume-of-interest imaging for kilovoltage intrafraction monitoring of the prostate*, 59th Annual Meeting of the American Association of Physicists in Medicine, August 2017, Denver, CO
13. M. Yewondwossen, **D. Parsons** and J.L. Robar, *WE-DE-BRA-08: A Linear Accelerator Target Allowing Rapid Switching Between Treatment and High-Contrast Imaging Modes*, 58th Annual Meeting of the American Association of Physicists in Medicine, July 2016, Washington, DC
14. **D. Parsons** and J.L. Robar, *X-ray tube current modulation with dynamic blade collimation for image quality improvement and dose reduction in CBCT guidance*, 35th Annual Congress of the European Society for Radiotherapy and Oncology, April 2016, Turin, Italy
15. **D. Parsons** and J.L. Robar, *TH-EF-BRB-05: Dynamic Blade Collimation for Image Quality Improvement and Dose Reduction in CBCT Guidance*, 57th Annual Meeting of the American Association of Physicists in Medicine, July 2015, Anaheim, CA
16. **D. Parsons** and J.L. Robar, *TH-A-18C-11: An investigation of KV CBCT image quality and dose reduction for volume-of-interest imaging using dynamic collimation*, 56th Annual Meeting of the American Association of Physicists in Medicine, July 2014, Austin, TX
17. C. Parsons, **D. Parsons**, J. L. Robar and R. Kelly, *TH-C-12A-10: Surface dose Enhancement using novel hybrid Electron and photon Low-Z therapy beams: Monte Carlo simulation*, 56th

Annual Meeting of the American Association of Physicists in Medicine, July 2014, Austin, TX

18. **D. Parsons**, J. L. Robar and D. Sawkey ,*WE-C-108-08: A Monte Carlo investigation of Low-Z target image quality generated in a linear accelerator using Varian's VirtuaLinac*, 55th Annual Meeting of the American Association of Physicists in Medicine, August 2013, Indianapolis, IN
19. J.L. Robar, D. Leary and **D. Parsons**, Novel approaches to volume of interest CBCT imaging using a 2.35 MV beam generated with a carbon target, Varian Research Partnership Symposium, March 2013, Atlanta, GA
20. J.L. Robar, **D. Parsons** and A. Hupman, *TH-C-BRA-02: A novel technology for volume-of-interest kV cone-beam CT*, 54th Annual Meeting of the American Association of Physicists in Medicine, July 2012, Charlotte, NC
21. J.L. Robar, **D. Parsons**, D. Leary, A. Berman and A. Macdonald, *TU-E-BRA-11: Volume-of-interest CBCT with a Low-Z linear accelerator target: proof-of-concept*, 54th Annual Meeting of the American Association of Physicists in Medicine, July 2012, Charlotte, NC
22. **D. Parsons** and J.L. Robar, Sci—Thur PM: YIS — 08: The effect of copper conversion plates on Low-Z target image quality, 58th Annual Meeting of the Canadian Organization of Medical Physicists and the Canadian College of Physicists in Medicine (Young Investigators' Symposium), July 2012, Halifax, Canada
23. J.L. Robar, **D. Parsons**, A. Berman and A. MacDonald, Volume of interest cone-beam CT with a 2.35 MV beam generated with a carbon linear accelerator target, World Congress on Medical Physics and Biomedical Engineering, May 2012, Beijing, China
24. **D. Parsons** and J. L. Robar, Planar imaging at energies below 2.4 MV with carbon and aluminium linear accelerator targets, World Congress on Medical Physics and Biomedical Engineering, May 2012, Beijing, China

#### Posters.....

1. M. Lin, Y. Gonzalez, **D. Parsons**, T. Zhuang, D. Nguyen, R. Reynolds, B. Hrycushko, E. Inam, J. Park, A. Pompos, S. Jiang, A. Godley and B. Cai *Adaptive on Demand: Leveraging Cone Beam Computed Tomography-Based Adaptive Online Radiotherapy System As Simulation-Free Replan Platform*, ASTRO 2022, October 2022, San Antonio, TX
2. Y. Gonzalez, B. Meng, **D. Parsons**, B. Hrycushko, T. Zhuang, B. Cai, Y. Zhang, K. Westover, M. Lin, and P. Iyengar, *Initial Clinical Experience of CBCT-Based Adaptive Online Radiotherapy for SAbR of Thoracic Malignancies*, ASTRO 2022, October 2022, San Antonio, TX
3. S. Montalvo, D. Kim, C. Nwachukwu, P. Alluri, **D. Parsons**, M. Lin, B. Cai, T. Zhuang, B. Hrycushko, L. Chen, R. Timmerman, A. Rahimi, *Real-Time Online Adaptation for Accelerated Partial Breast Irradiation Significantly Improves Target Coverage without Compromising Organs at Risk*, ASTRO 2022, October 2022, San Antonio, TX
4. Y. Gonzalez, B. Meng, **D. Parsons**, B. Hrycushko, T. Zhuang, B. Cai, Y. Zhang, K. Westover, P. Iyengar, A. Godley, S. Jiang, M. Lin, *Benchmark CBCT-Based Adaptive Online Radiotherapy for SAbR of Thoracic Malignancies*, 64th Annual Meeting of the American Association of Physicists in Medicine, July 2022, Washington, DC
5. T. Zhuang, **D. Parsons**, Y. Gonzalez, G. Gibbard, M. Lin, B. Cai, B. Hrycushko, D. Nguyen, R.

- Reynolds, A. Godley, A. Pompos, N. Desai, S. Jiang, *On-Couch IMRT Treatment for Prostate Cancer Patients Without An Individualized Pre-Treatment Plan*, 64th Annual Meeting of the American Association of Physicists in Medicine, July 2022, Washington, DC
6. J. Visak, **D. Parsons**, T. Chiu, A. Godley, J. Deng, *Fabrication of a Novel Device Insert to Assess Feasibility of Manually Gated Treatments On MR Linac*, 64th Annual Meeting of the American Association of Physicists in Medicine, July 2022, Washington, DC
  7. J. Visak, E. Inam, B. Meng, D. Nguyen, **D. Parsons**, T. Zhuang, D. Moon, V. Avkshtol, D. Sher, M. Lin, *Synergizing Artificial Intelligence 3D Dose Predictor with Ethos Intelligent Optimizer for Head and Neck Adaptive Radiotherapy Treatments*, 64th Annual Meeting of the American Association of Physicists in Medicine, July 2022, Washington, DC
  8. **D. Parsons**, L. Chen, H. Lee, Y. Zhang, B. Cai, T. Zhuang, B. Hrycushko, C. Park, Y. Gonzalez, X. Zhong, J. Visak, C. Nwachukwu, N. Kim, P. Alluri, A. Rahimi, M. Lin, *A Dosimetric Comparison for Adaptive Cone-Beam CT and MRI Based Radiotherapy for Stereotactic Partial Breast Irradiation*, 64th Annual Meeting of the American Association of Physicists in Medicine, July 2022, Washington, DC
  9. E. Inam, L. Chen, Y. Gonzalez, **D. Parsons**, A. Godley, S. Jiang, W. Lu, R. Reynolds, B. Cai, M. Lin, *Analysis of Patient-Specific Quality Assurance for Ethos Pre-Plan and Adaptive Plan Following TG-218 Recommendation*, 64th Annual Meeting of the American Association of Physicists in Medicine, July 2022, Washington, DC
  10. X. Zhao, **D. Parsons**, Z. Iqbal, *Leveraging Prior Knowledge to Reconstruct Quantitative MR Relaxation Maps to Investigate Glioma Tumor Heterogeneity*, 63rd Annual Meeting of the American Association of Physicists in Medicine, July 2021, Virtual
  11. E. Zhang, **D. Parsons**, J. Tan, M. Joo, R. Reynolds, Y. Zhang, P. Lee, E. Chambers, N. Desai, T. Dan, K. Kumar, X. Gu, *Volumetric Modulated Arc Therapy Based Total Body Irradiation Five Year Clinical Experience*, ASTRO 2020, October 2020, Virtual
  12. **D. Parsons**, Z. Iqbal, N. Sanford, R. Reynolds, S. Stojadinovic, T. Aguilera, T. Chiu, W. Lu, M. Folkert, X. Gu, *Investigating Stability and Reproducibility of Deep Inspiration Breath Hold for Liver Stereotactic Body Radiotherapy*, 62th Annual Meeting of the American Association of Physicists in Medicine, July 2020, Virtual
  13. Z. Iqbal, R. McBeth, M. Joo, **D. Parsons**, A. Rahimi, N. Kim, A. Sawant, X. Gu, B. Zhao, *Comparing the Stability of Deep Inspiration Breath-Holds Between ABC and VisionRT During Breast Irradiation*, 62nd Annual Meeting of the American Association of Physicists in Medicine, July 2020, Virtual
  14. Z. Xiong, **D. Parsons**, Y. Zhong, B. Gannavarapu, C. Nwachukwu, M. Folkert, X. Jia, P. Medin, K. Albuquerque, B. Hrycushko, T. Chiu, *Developing a Novel 3D Print-Based Phantom to Facilitate Ultrasound-Guided Interstitial Gynecologic Brachytherapy Training Simulation*, 62th Annual Meeting of the American Association of Physicists in Medicine, July 2020, Virtual
  15. E. Zhang, **D. Parsons**, J. Tan, M. Joo, R. Reynolds, Y. Zhang, P. Lee, E. Chambers, N. Desai, T. Dan, K. Kumar, X. Gu, *Volumetric Modulated Arc Therapy Based Total Body Irradiation Five Year Clinical Experience*, 62nd Annual Meeting of the American Association of Physicists in Medicine, July 2020, Virtual



16. C. Church, **D. Parsons**, A. Syme, *Control Point-Specific Repositioning to Reduce the Dosimetric Impact of Intrafraction Motion for Small Targets Treated with Virtual Cones*, 62nd Annual Meeting of the American Association of Physicists in Medicine, July 2020, Virtual
17. Z. Iqbal, T Chiu, **D. Parsons**, A Godley, X Gu, S Stojadinovic, *Comparison of Reference Dosimetry Protocols for Small Radiosurgery Fields*, 62nd Annual Meeting of the American Association of Physicists in Medicine, July 2020, Virtual
18. M.N. Ha, O. Piccolo, N. Melong, **D. Parsons**, A. Detappe, O. Tillement, R. I. Berbeco, J. N. Berman, J. L. Robar, *Low Z Target Beam Enhances Gold/Gadolinium Nanoparticle Mediated Cell Kill in Zebrafish Xenograft Model*, ASTRO 2019, September 2019, Chicago, IL
19. T. Chiu, **D. Parsons**, K. Nguyen, P. Ho, J. Dwyer, and S. Stojadinovic, *Custom Design for Extended FSD Superficial Treatments*, ASTRO 2019, September 2019, Chicago, IL
20. Z. Iqbal, H. Ho, R. Reynolds, **D. Parsons**, *The Healthy Physicist: Improving Clinical Presence While Reducing Risk Factors Associated with Cardiovascular Disease*, 61st Annual Meeting of the American Association of Physicists in Medicine, July 2019, San Antonio, TX
21. **D. Parsons**, C. Ding, B. Zhao, T. Chiu, L. Tirpak, R. Reynolds, Y. Park, Y. Yan, S. Jiang and X. Gu, *Characterization and Validation of SRS MapCheck for Patient Specific QA On CyberKnife M6*, 61st Annual Meeting of the American Association of Physicists in Medicine, July 2019, San Antonio, TX
22. T. Chiu, **D. Parsons**, M. Folkert, P. Medin, B. Hrycushko, *3D Printing-based Prostate Phantom for Ultrasound-Guided Interstitial HDR Brachytherapy Training Program*, 2019 American Brachytherapy Society Annual Meeting, June 2019, Miami, FL
23. **D. Parsons**, C. Church and A. Syme, *SU-I-GPD-T-451: Toward a High Precision Pre-Clinical Irradiator Using Clinical Infrastructure*, 60th Annual Meeting of the American Association of Physicists in Medicine, August 2018, Nashville, TN
24. **D. Parsons**, X. Gu, S. Stojadinovic, M. Chen, S. Jiang and W. Lu, *SU-I-GPD-T-453: Investigation of Small Field Electron Beams for Preclinical Irradiation*, 60th Annual Meeting of the American Association of Physicists in Medicine, August 2018, Nashville, TN
25. M Chen, **D. Parsons**, X. Gu and W. Lu, *SU-I-GPD-J-66: Real-Time Breathing Phase Identification Using Treatment Beams, EPID, and Deep Network*, 60th Annual Meeting of the American Association of Physicists in Medicine, August 2018, Nashville, TN
26. C. Ma, **D. Parsons**, M. Chen, X. Gu and W. Lu, *SU-I-GPD-T-58: Modulated Electron Arc Therapy Using Photon MLC Monte Carlo Based Feasibility Study*, 60th Annual Meeting of the American Association of Physicists in Medicine, August 2018, Nashville, TN
27. M. Ha, O. Piccolo, N. Melong, **D. Parsons**, A. Detappe, O. Tillement, R. I. Berbeco, J. N. Berman and J. L. Robar, *An in vivo model to study the use of nanoparticles as a radiosensitizer in radiation beams generated from a low Z target*, 59th Annual Meeting of the American Society for Radiation Oncology, September 2017, San Diego, CA
28. M. Ha, O. Piccolo, N. Melong, **D. Parsons**, A. Detappe, O. Tillement, R. I. Berbeco, J. N. Berman and J. L. Robar, *An in vivo model to study the use of nanoparticles as a radiosensitizer in radiation beams generated from a low Z target*, Annual Scientific Meeting of the Canadian Association of Radiation Oncology, September 2017, Toronto, Canada

29. **D. Parsons**, M.T.R. Stevens and J. L. Robar, Current modulated volume-of-interest imaging for kilovoltage intrafraction monitoring of the prostate, Varian Research Partnership Symposium, March 2017, Chicago, IL
30. **D. Parsons** and J.L. Robar, *SU-G-JeP4-13: Continuous intra-fractional monitoring of the prostate using dynamic kV collimation and tube current modulation*, 58th Annual Meeting of the American Association of Physicists in Medicine, July 2016, Washington, DC
31. M.T.R. Stevens, **D. Parsons**, and J. L. Robar, *EP-1746: Stereo/monoscopic motion tracking of the prostate using room-mounted x-ray image guidance*, 35th Annual Congress of the European Society for Radiotherapy and Oncology, April 2016, Turin, Italy
32. R. Kelly, **D. Parsons** and J.L. Robar, *SU-E-T-244: Designing Low-Z targets to enhance surface dose: A Monte Carlo simulation*, 57th Annual Meeting of the American Association of Physicists in Medicine, July 2015, Anaheim, CA
33. **D. Parsons** and J.L. Robar, Dynamic kV collimation for reduction of imaging dose and image quality improvement, Varian Research Partnership Symposium, March 2015, Atlanta, GA

## Teaching Experience

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### At UT Southwestern:.....

**Stereotactic Body Radiation Therapy Course** **January 2023–Present**  
*Physicians, Physicists, Dosimetrists and Therapists from around the world*

**Lecturer for Radition Therapy** **August 2021–Present**  
*Graduate students on the Medical Physics track*

**Lecturer for Radiation Production** **October 2021–Present**  
*Medical Residents*

### At Dalhousie University:.....

**Lecturer for Computational methods in medical physics:** **January–April 2018**  
*Taught several of sessions of MEDP/PHYC 6450 related to Monte Carlo in radiation therapy and corresponding labs*

### Gradutate Supervision:.....

**Cody Church, Doctor of Philosophy** **2018–2022**  
*Dalhousie University, Co-Supervisor,*  
*Thesis: Techniques to Minimize the Dosimetric Impact of Intrafractional Motion with Improved Treatment Accuracy and Efficiency on a C-arm Medical Linear Accelerator*

**Chaoqiong Ma, PhD Candidate** **2017–2018**  
*UT Southwestern, Mentor,*  
*Mentored Chaoqiong's project on modulated electron arc radiation therapy for chest wall and breast radiotherapy*

Resident Supervision:.....

**Siqiu Wang, PhD**

UT Southwestern, 2022-present  
Mentored Siqiu for her dosimetry, treatment delivery, machine QA and special procedures rotations

**Ronny Rahman, PhD**

UT Southwestern, 2022-present  
Mentored Ronny for his dosimetry, treatment delivery, machine QA and special procedures rotations

**Sean Domal, PhD**

UT Southwestern, 2022-present  
Mentored Sean for his dosimetry, treatment delivery, machine QA and special procedures rotations

**Ruiqi Li, PhD**

UT Southwestern, 2022-present  
Mentored Ruiqi for his dosimetry, treatment delivery, machine QA and special procedures rotations

**Justin Visak, PhD**

UT Southwestern, 2021-present  
Mentored Justin for his dosimetry, treatment delivery, machine QA, shielding and special procedures rotations

**Chenyang Shen, PhD**

UT Southwestern, 2021-present  
Mentored Chenyang for his dosimetry, treatment delivery, machine QA and special procedures rotations

**Yesenia Gonzalez, PhD**

UT Southwestern, 2021-present  
Mentored Yesenia for her dosimetry, treatment delivery, machine QA and special procedures rotations

**Boyu Meng, PhD**

UT Southwestern, 2021-present  
Mentored Boyu for his dosimetry, treatment delivery, machine QA and special procedures rotations

**Liyuan Chen, PhD**

UT Southwestern, 2021-2  
Mentored Liyuan for her TBI/TSE and dosimetry rotations

**Xinran Zhong, PhD**

UT Southwestern, 2021-2  
Mentored Xinran for her TBI/TSE and dosimetry rotations

**Samaneh Kazemifar, PhD**

UT Southwestern, 2021-2

*Mentored Samaneh for her TBI/TSE rotation and was her life coach throughout residency*

**Hugh Lee, PhD**

*UT Southwestern,*

2021-2

*Mentored Hugh for the his TBI/TSE rotation*

**Mindy Joo, PhD**

*UT Southwestern,*

2021

*Mentored Mindy for her TBI/TSE rotation*

**Rafe McBeth, PhD**

*UT Southwestern,*

2021

*Mentored Rafe for his TBI/TSE rotation*

**Deepak Shrestha, PhD**

*UT Southwestern,*

2021

*Mentored Deepak for his TBI/TSE rotation*

**Zhenyu Xiong, PhD**

*UT Southwestern,*

2021

*Mentored Zhenyu for his TBI/TSE rotation*

## Professional Activities

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### Memberships.....

The American Association of Physicists in Medicine, Member

Canadian Organization of Medical Physicists, Member

### Committees.....

American Association of Physicists in Medicine Task Group No. 379 - Technical Guidelines for Total Body Irradiation, Total Marrow Irradiation, and Total Lymphoid Irradiation

### Academic Reviewing.....

Reviewer of scientific articles submitted to:

Medical Physics;

Physics in Medicine and Biology;

The Journal of Applied Clinical Medical Physics;

Advances in Radiation Oncology;

Medical Dosimetry;

Current Medical Imaging Reviews

## References

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