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Overview

Professor of Radiotherapy Physics. This is a joint post between the University of Manchester and the Christie. Marcel is responsible for developing a programme of international leading radiotherapy physics research and innovation to deliver direct patient benefits. The main focus is on accuracy of radiotherapy including target volume definition, treatment planning, image guidance and treatment follow-up.
Work Stream 4 for NCRI Clinical and Translational Radiotherapy Research (CTRad) Working Group

Employment

Chair in Radiotherapy Physics

Academic (Teaching & Research) Professor
Division of Cancer Sciences (L5)
The University of Manchester
1 Aug 2016 → present

Research outputs

137 - Using heart contour volume variability as natural experiment to test the effect heart sparing

van Herk, M., Abravan, A., Faivre-Finn, C. & McWilliam, A., 24 Apr 2023, (E-pub ahead of print) p. S59-S60. 2 p.

Efficient Visualisation of Changes in CBCT During Radiotherapy to Detect Lung Infections

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Making radiotherapy smarter

Van Herk, M. & Vasquez Osorio, E., 30 Jul 2019, (Accepted/In press) In: Lancet Oncology.

Comparing two web platforms for uncertainty simulation of external beam radiotherapy

Van Herk, M., Shortall, J., Robbins, J., Green, A. & Vasquez Osorio, E., 1 Jun 2019, *19th International Conference on the use of Computers in Radiation Therapy*. p. 99-100

Magnetic Resonance Imaging-Guided Radiation Therapy: A Short Strengths, Weaknesses, Opportunities, and Threats Analysis

van Herk, M., McWilliam, A., Dubec, M., Faivre-Finn, C. & Choudhury, A., 1 Aug 2018, In: International Journal of Radiation Oncology Biology Physics. 101, 5, p. 1057-1060 4 p.

Learning from every patient treated

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MRI Guided Radiotherapy: A Short SWOT Analysis

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EP-1844: Feasibility of generating mid-position CT from 4DCT using commercial deformable registration systems
Herk, M. V., McWilliam, A., Whitehurst, P. & Faivre-Finn, C., Apr 2016, In: Radiotherapy & Oncology.

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Dynamic CT perfusion image data compression for efficient parallel processing.
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Establishing implantation uncertainties for focal brachytherapy with I-125 seeds for the treatment of localized prostate cancer.
Van Herk, M., Polders, D. L., Steggerda, M., van Herk, M., Nichol, K., Witteveen, T., Moonen, L., Nijkamp, J. & van der Heide, U. A., Jun 2015, In: Acta Oncologica . 54, 6

WE-D-BRA-04: Online 3D EPID-Based Dose Verification for Optimum Patient Safety.
Van Herk, M., Spreeuw, H., Rozendaal, R., Olaciregui-Ruiz, I., Mans, A., Mijnheer, B., van Herk, M. & Gonzalez, P., Jun 2015, In: Medical Physics. 42, 6

Dynamic collimator angle adjustments during volumetric modulated arc therapy to account for prostate rotations.
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Acute toxicity after image-guided intensity modulated radiation therapy compared to 3D conformal radiation therapy in prostate cancer patients.
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Improved image quality of cone beam CT scans for radiotherapy image guidance using fiber-interspaced antiscatter grid.

Van Herk, M., Stankovic, U., van Herk, M., Ploeger, L. S. & Sonke, J.-J., Jun 2014, In: *Medical Physics*. 41, 6

Automatic detection system for multiple region of interest registration to account for posture changes in head and neck radiotherapy.

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Fusion of planning CT and cystoscopy images for bladder tumor delineation: a feasibility study.

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A comprehensive system for the analysis of portal images.

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An algorithm for automatic analysis of portal images: clinical evaluation for prostate treatments.

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Automatic on-line inspection of patient setup in radiation therapy using digital portal images.

Van Herk, M., Gilhuijs, K. G. & van Herk, M., 1993, In: Medical Physics. 20, 3, p. 667-77

A fast algorithm for local minimum and maximum filters on rectangular and octagonal kernels

van Herk, M., Jul 1992, In: Pattern Recognition Letters. 13, 7, p. 517-521 5 p.

Automatic verification of radiation field shape using digital portal images.

Van Herk, M., Bijhold, J., Gilhuijs, K. G. & van Herk, M., 1992, In: Medical Physics. 19, 4, p. 1007-14

Sampling methods for a matrix ionization chamber system.

Van Herk, M., van Herk, M., Bijhold, J., Hoogervorst, B. & Meertens, H., 1992, In: Medical Physics. 19, 2, p. 409-18

Fast evaluation of patient set-up during radiotherapy by aligning features in portal and simulator images.

Van Herk, M., Bijhold, J., van Herk, M., Vijlbrief, R. & Lebesque, J. V., Dec 1991, In: Physics in Medicine and Biology. 36, 12

Radiation field edge detection in portal images.

Van Herk, M., Bijhold, J., Gilhuijs, K. G., van Herk, M. & Meertens, H., Dec 1991, In: Physics in Medicine and Biology. 36, 12

Physical aspects of a liquid-filled ionization chamber with pulsed polarizing voltage.

Van Herk, M. & van Herk, M., 1991, In: Medical Physics. 18, 4

First clinical experience with a newly developed electronic portal imaging device.

Van Herk, M., Meertens, H., van Herk, M., Bijhold, J. & Bartelink, H., May 1990, In: International journal of radiation oncology, biology, physics. 18, 5

An inverse filter for digital restoration of portal images.

Van Herk, M., Meertens, H., van Herk, M. & Weeda, J., Jun 1988, In: Physics in Medicine and Biology. 33, 6

A matrix ionisation chamber imaging device for on-line patient setup verification during radiotherapy.

Van Herk, M., van Herk, M. & Meertens, H., Apr 1988, In: Radiotherapy and oncology : journal of the European Society for Therapeutic Radiology and Oncology. 11, 4

A liquid ionisation detector for digital radiography of therapeutic megavoltage photon beams.

Van Herk, M., Meertens, H., van Herk, M. & Weeda, J., Apr 1985, In: Physics in Medicine and Biology. 30, 4

Activities

Beyond Quantec

Van Herk, M. (Chair)

24 Feb 2020 → 25 Feb 2020

AERO Academy Conference

Van Herk, M. (Chair)

7 Feb 2020 → 8 Feb 2020

Data mining for adaptive radiotherapy

Van Herk, M. (Invited speaker)

17 Jan 2020

4D Treatment Workshop for Particle Therapy 2019

Van Herk, M. (Chair)

23 Nov 2019

George Edelstyn Lecture

Van Herk, M. (Speaker)

4 Oct 2019

Advanced Treatment Planning

Van Herk, M. (Member of programme committee)

22 Sept 2019 → 26 Sept 2019

Radiotherapy / Modelling and theranostics

Van Herk, M. (Speaker)

29 Aug 2019

The 4th Christie Advanced Radiotherapy Summer School

Van Herk, M. (Chair)

3 Jul 2019

Highlight talk: Restoring a Data General Nova computer used in the first CT scanner

Van Herk, M. (Speaker)

18 Jun 2019

Comparing two web platforms for uncertainty simulation of external beam radiotherapy

Van Herk, M. (Speaker)

17 Jun 2019

Dose Calculation and Optimisation

Van Herk, M. (Speaker)

13 Jun 2019

Tools & technologies for adaptive radiotherapy

Van Herk, M. (Speaker)
12 Jun 2019

Debate: This house believes that margin reduction is the key to improved outcome. For the motion

Van Herk, M. (Speaker)
28 Apr 2019

Cutting Edges and Challenges: Data Sharing: Needs, Opportunities and Issues.

Van Herk, M. (Invited speaker)
27 Mar 2019

Predicting Tumour Control and Survival: Upcoming Results on Treatment Failure and Survival

Van Herk, M. (Invited speaker)
26 Mar 2019

IGRT for CNS and Head and Neck

Van Herk, M. (Speaker)
20 Feb 2019

Uncertainties in image registration and contour propagation

Van Herk, M. (Speaker)
20 Feb 2019

Technology: Planar imaging, MV and kV

Van Herk, M. (Speaker)
18 Feb 2019

Learning from every SBRT patient treated

Van Herk, M. (Invited speaker)
5 Oct 2018

Adaptive planning strategies - Robust & probabilistic planning - Rigid and non-rigid multimodality image registration

Van Herk, M. (Invited speaker)
25 Sept 2018

Adaptive Radiotherapy

Van Herk, M. (Invited speaker)
4 Jul 2018

Adaptive Radiotherapy: Adaptive RT Developments

Van Herk, M. (Invited speaker)
Jul 2018

Radiation Oncology Physics and Systems: Learning from every patient treated

Van Herk, M. (Keynote speaker)
Jun 2018

ESTRO 23, October 2004

Van Herk, M. (Participant)
Oct 2004

Prizes

Breur Award

Van Herk, M. (Recipient), 2004

Impact Award

Van Herk, M. (Recipient), 19 Jun 2018

Netherlands Cancer Institute awards

Van Herk, M. (Recipient), 2015

Awards

Projects

15HLTO8 Consortium - EURAMET - EMPIR

Van Herk, M. (PI) & Kirkby, K. (Col)

1/06/16 → 31/05/19

Advanced Radiotherapies Technologies Network (ART-NET)

Faivre-Finn, C. (PI), Illidge, T. (Col), Kirkby, K. (Col) & Van Herk, M. (Col)

1/09/16 → 31/08/21

A Tool for Predicting an Individual Prostate Cancer Patient's Risk of Metastasis and Need for Lymph Node Irradiation.

Choudhury, A. (PI), Kirkby, N. (Col), McWilliam, A. (Col), Van Herk, M. (Col) & West, C. (Col)

1/03/17 → 28/06/20

MAAnchester RESEARCH Transforming Radiation Oncology (MAESTRO) Programme as Part of CRUK RadNet.

Bristow, R. (PI), Burnet, N. (Col), Choudhury, A. (Col), Dive, C. (Col), Faivre-Finn, C. (Col), Hagan, I. (Col), Hoskin, P. (Col), Hussell, T. (Col), Illidge, T. (Col), Kirkby, K. (Col), Kostarelos, K. (Col), O'Connor, J. (Col), Peek, N. (Col), Rattray, M. (Col), Taylor, S. (Col), Thornton, D. (Col), Van Herk, M. (Col), West, C. (Col), Whetton, A. (Col), Williams, K. (Col) & Yorke, J. (Col)

1/11/19 → 31/10/24

NIHR Biomedical Research Centre: Cancer Advanced Radiotherapy Theme.

West, C. (PI), Bristow, R. (Col), Bruce, I. (Col), Burnet, N. (Col), Choudhury, A. (Col), Evans, D. (Col), Faivre-Finn, C. (Col), Hoskin, P. (Col), Illidge, T. (Col), Kirkby, K. (Col), Kirkby, N. (Col), O'Connor, J. (Col) & Van Herk, M. (Col)

1/04/17 → 31/03/19

NIHR Manchester Biomedical Research Centre

Bruce, I. (PI), Lord, G. (Col), Lennon, R. (Col), Black, G. (Col), Wedge, D. (Col), Morris, A. (Col), Hussell, T. (Col), Sharrocks, A. (Col), Stivaros, S. (Col), Buch, M. (Col), Gough, J. (Col), Kostarelos, K. (Col), Thistlethwaite, F. (Col), Kadler, K. (Col), Barton, A. (Col), Hyrich, K. (Col), Mcbeth, J. (Col), O'Neill, T. (Col), Vestbo, J. (Col), Simpson, A. (Col), Singh, S. (Col), Smith, J. (Col), Felton, T. (Col), Murray, C. (Col), Griffiths, C. (Col), Cullum, N. (Col), Rhodes, L. (Col), Warren, R. (Col), Paus, R. (Col), Dumville, J. (Col), Viros Usandizaga, A. (Col), Keavney, B. (Col), Tomaszewski, M. (Col), Allan, S. (Col), Body, R. (Col), Cartwright, E. (Col), Heagerty, A. (Col), Kalra, P. (Col), Miller, C. (Col), Rutter, M. (Col), Smith, C. (Col), Trafford, A. (Col), Evans, D. (Col), Davidson, E. (Col), Crosbie, P. (Col), Harvie, M. (Col), Howell, S. (Col), Renehan, A. (Col), Dive, C. (Col), Blackhall, F. (Col), Landers, D. (Col), Krebs, M. (Col), Cook, N. (Col), Clarke, R. (Col), Taylor, S. (Col), Jorgensen, C. (Col), Lorigan, P. (Col), Jayson, G. (Col), Valle, J. (Col), McCabe, M. (Col), Armstrong, A. (Col), Freitas, A. (Col), Illidge, T. (Col), Choudhury, A. (Col), Hoskin, P. (Col), West, C. (Col), Van Herk, M. (Col), Faivre-Finn, C. (Col), Bristow, R. (Col), Kirkby, K. (Col), Birtle, A. (Col), Mackay, R. (Col), Radford, J. (Col), Linton, K. (Col), Higham, C. (Col), Munro, K. (Col), Plack, C. (Col), Arden Armitage, C. (Col), Bruce, I. (Col), Moore, D. (Col), Saunders, G. (Col), Stone, M. (Col), Haddock, G. (Col), Lewis, S. (Col), Elliott, R. (Col), Green, J. (Col), Lovell, K. (Col), Morrison, A. (Col), Shaw, J. (Col), Bucci, S. (Col), Ainsworth, J. (Col), Webb, R. (Col), Newman, W. (Col), Banka, S. (Col), Clayton-Smith, J. (Col), Payne, K. (Col), Moldovan, R. (Col), Wynn, R. (Col) & Jones, S. (Col)

1/12/22 → 30/11/27

Datasets