

# CURRICULUM VITAE

for

**TARAN PAULSEN HELLEBUST, PhD**

**NAME:** Taran Paulsen Hellebust  
**DATE AND PLACE OF BIRTH:** 16<sup>th</sup> August, 1965, Tønsberg  
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**FAMILY:** Cohabitant, two children (24 years old)

## **EDUCATION:**

1990 MSc. Norwegian University for Technology and Science.  
2009 PhD University of Oslo

## **EMPLOYMENTS:**

1990-2000 Medical Physicist, Oslo University Hospital - The Norwegian Radium Hospital  
2000-2013 50% position as Medical Physicist, Oslo University Hospital - The Norwegian Radium Hospital  
2000-2013 50% position as Senior Consultant, The Norwegian Radiation Protection Authority  
2012- 20% position as Associate Professor at Department of Physics, University in Oslo  
2013- Head of Section for Research and Education at Department for Medical Physics, Oslo University Hospital  
2014- Leader of the Research group for radiotherapy at Oslo University Hospital

## **SCIENTIFIC AND PROFESSIONAL ACTIVITIES:**

### **International projects/committees**

- Member of the EMBRACE (Image guided intensity modulated **E**xternal beam radiochemotherapy and **M**RI based adaptive **B**Rachytherapy in locally advanced **C**ervical cancer) collaborative group. The group is listed as co-author in 9 publications in peer review journals
- Within the EMBRACE collaborative group
  - Participating in analyzing the EMBRACE-I treatment and follow up data (one publication in 2018 and several manuscripts in preparation).
  - Conducted an interobserver variability study in MR based treatment planning for brachytherapy in cervical cancer patients (2 publications with first and last authorship in 2013, both with more than 45 citations)
  - Work package leader for “Recommendation for applicator reconstruction” (published in 2010, more than 140 citations).
  - Participating in the initial work of developing the EMBRACE-I protocol
  - Member of the committee that developed new guidelines for advanced treatment of cervical cancer (published in 2005, more than 760 citations)
- Member of the BRAPHYQS-group (**B**rachytherapy **P**hysics **Q**uality Assurance **S**ystem) in ESTRO, co-author of 4 publications from this group, two of them with more than 100 citations)
- Member of the GEC-ESTRO group responsible for “Patter of care in brachytherapy” (published in 2010, more than 60 citations)

### **National projects**

- Member of the group that are working with improving non-invasive imaging techniques to localize and characterize the tumor anatomically and functionally (dynamic image series) for radiotherapy patients with GI, lung, cervix and H&N cancer at Oslo University Hospital (co-author of 5 publications since 2015).
- Leader of the competence building program for medical physics in proton therapy at OUH since 2015.

- Developed and implemented The Norwegian Program on Quality Assurance in Radiotherapy (the KVIST project) including (one publication in peer review journal):
  - Developed national guidelines for training of medical physicists in radiotherapy (Strålevernrapport 2005:6).
  - Developed and conducted a pilot project of Clinical Audits in Norwegian radiotherapy (Strålevernrapport 2004:9).
  - Developed national radiotherapy guidelines for gastrointestinal cancer, lung cancer, gynecological cancer and prostate cancer (work in progress) in close cooperation with the national cancer groups.
- Facilitating inclusion of patients in the EMBRACE-I and EMBRACE –II study at OUH, including writing patient information and participating in writing the application for the ethical committee. Are the responsible physicist for these studies at OUH.
- Developed and implemented 3dimensional (3D)-based brachytherapy at OUH including:
  - Brachytherapy for prostate cancer (ultrasound based)
  - Brachytherapy for gynaecological cancer (MR and CT based)

### **Publications**

- H-index = 16
- Author/co-author of 32 original scientific papers in international peer review journals (16 since 2013)
- Author/co-author of 33 proceeding and abstracts at scientific meetings
- Author/co-author of 6 book chapters

### **Lecturer/referee/supervisor**

- Member of faculty of the teaching course “Image guided radiotherapy and chemotherapy in gynecological cancer – focus on adaptive brachytherapy in” run by European School of Radiotherapy 2005-2017. Outside Europe the course has been arranged in The Philippines (2009), in India (2011) and in Russia (2013).

- Responsible for the course Physics in radiotherapy FYS4730/FYS9730 at UiO since 2010
- Responsible for the courses Strålefysikk I and II arranged by Legeforeningen. The courses are obligatory in the oncology educational program.
- Invited lecturer at several international conferences (9<sup>th</sup> biennial ESTRO, 11<sup>th</sup> biennial ESTRO, ESTRO 28, ESTRO 29, ESTRO 31, ESTRO 33, ESTRO 35, ESTRO 37, ESTRO meets Asia 2018, GEC-ESTRO, 2<sup>nd</sup> ESTRO Forum, 3<sup>rd</sup> ESTRO Forum, Radiogenomic Consortium Workshop 2011, British Institute of Radiology)
- Given lectures in courses at NTNU (Dosimetry)
- Referee for several international journals: Radiotherapy and Oncology, Acta Oncologica, Acta Radiologica, International Journal of Radiation Oncology Biology Physics, Brachytherapy
- Supervisor and co-supervisor of more than 10 students at the level of BSc and 9 students at the level of MSc.
- Co-supervisor for one PhD students (finalized April 2017) and currently co-supervisor for another PhD student

### **Council member/Board member**

- Council member of GEC-ESTRO since 2003
- Secretary in GEC-ESTRO committee since May 2012
- Member of the Scientific Advisory Group in three international conferences: ESTRO 33 Vienna 2014, 3<sup>rd</sup> ESTRO Forum Barcelona 2015, ESTRO 35 Turin 2016
- Leader of the User Group in the Silicon-based 3D mini- and micro dosimeters (Si-3DMiMic) project, supported by the Research Council
- Board member of Nordic Society of Gynaecological Oncology (NSGO) 2008-2012
- Board member of The Norwegian Society of Medical Physics 1998-2005

### **Courses**

- Medical Publishing, Institute of Health and Society, University of Oslo

- Research organization and management, Regional Research Support, Oslo University Hospital
- Introductory to leadership and management, Oslo University Hospital – 2015
- 1 og 13 participants in a pilot management program for section leaders at the Cancer Clinic, Oslo University Hospital in 2016
- Good Clinical Practice (GCP), Department of Clinical Research Support, Oslo University Hospital 2016

## LIST OF PUBLICATIONS

### PEER REVIEW JOURNALS:

1. Wedde T, Smaastuen MC, Fosså SD, Brabrand S, Kaasa S, Tafjord G, Russnes KM, Hellebust TP, Lilleby W. Ten -year survival after High-Dose-Rate Brachytherapy combined with External Beam Radiation Therapy in high-risk prostate cancer: a comparison with the Norwegian SPCG-7 cohort. *Radiother Oncol* Submitted.
2. Serban M, Kirisits C, Pötter P, de Leeuw A, Nkiwane K, Dumas I, Nesvacil N, Swamidas J, Hudej R, Lowe G, Hellebust TP, Menon G, Oinam A, Bownes P, Oosterveld B, De Brabandere M, Koedooder K, Marthinsen ABL, Lindegaard J, Tanderup K. Isodose surface volumes in cervix cancer brachytherapy: Change of practice from standard (Point A) to individualized image guided adaptive (EMBRACE I) brachytherapy. *Radiother Oncol* Accepted
3. Hellebust TP. Place of modern imaging in brachytherapy planning. *Cancer Radiother* 2018;22(4):326-333. Review.
4. Li A, Andersen E, Lervåg C, Julin CH, Lyng H, Hellebust TP, Malinen E. Dynamic contrast enhanced magnetic resonance imaging for hypoxia mapping and feasibility of brachytherapy targeting. *Phys Imag Radiat Oncol* 2017;2:1-6.
5. Arnesen MR, Hellebust TP, Malinen E. Impact of dose escalation and adaptive radiotherapy for cervical cancers on tumour shrinkage – a modelling study. *Phys Med Biol* 2017;62(6):N107-N119.
6. Rusten E, Rekstad BL, Undseth C, Al-Haidari G, Hanekamp B, Hernes E, Hellebust TP, Malinen E, Guren M. Target volume delineation of anal cancer based on magnetic resonance imaging or positron emission tomography. *Radiat Oncol* 2017;12(1):147
7. Arnesen MR, Rekstad BL, Stokke C, Bruheim K, Løndalen AM, Hellebust TP, Malinen E. Short-course PET based simultaneously integrated boost for locally advanced cervical cancer. *Radiother Oncol* 2016;11(39):1-8.

8. Arnesen MR, Knudtsen IS, Rekstad BL, Eilertsen K, Dale E, Bruheim K, Helland Å, Løndalen AM, Hellebust TP, Malinen E. Dose painting by numbers in a standard treatment planning system using inverted dose prescription maps. *Acta Oncol* 2015;27:1-7.
9. Arnesen MR, Bruheim K, Malinen E, Hellebust TP. Spatial dosimetric sensitivity of contouring uncertainties in gynaecological 3D-based brachytherapy. *Radiother Oncol* 2014;113(3):414-419.
10. Hellebust TP, Heikkilä I, Frykholm G, Johannessen DC, Levernes S, Bjerke H, Olerud H. Quality assurance in radiotherapy on a national level; experience from Norway - the KVIIST initiative. *J Radiother Pract* 2014;13(1):35-44.
11. Kirisits C, Rivard M, Baltas D, Ballester F, De Brabandere M, van der Laarse R, Niatsetski Y, Papagiannis P, Hellebust TP, Perez-Calatayud J, Tanderup K, Venselaar JL, Siebert FA. Review of clinical brachytherapy uncertainties: Analyses guidelines of GEC-ESTRO and the AAPM . *Radiother Oncol* 2014;110(1):199-212.
12. Tedgren ÅC, Bjerke H, Grindborg JE, Hetland PO, Kosunen A, Hellebust TP, Persson L, Sipila P. Comparison of HDR 192Ir source strength measurements. *Brachytherapy* 2014;13(4):420-423.
13. Hoskin P, Colombo A, Henry A, Niehoff P, Hellebust TP, Siebert FA, Kovacs G. GEC-ESTRO recommendations on high dose rate afterloading brachytherapy for localised prostate cancer: an update. *Radiother Oncol* 2013;107:325-332.
14. Onsrud M, Cvancarova M, Hellebust TP, Tropé C, Kristensen G, Lindeman K. Long-term outcomes after pelvic radiation for early stage endometrial cancer. *J Clin Oncol* 2013;31(31):3951-6.
15. Petric P, Hudej R, Rogelj P, Blas M, Tanderup K, Fidarova E, Kirisits C, Berger D, Dimopoulos JCA, Pötter R, Hellebust TP. Uncertainties of target volume delineation in MRI guided adaptive brachytherapy of cervix cancer: a multi-institutional study. *Radiother Oncol* 2013;107:6-13.
16. Hellebust TP, Tanderup K, Lervåg C, Fidarova E, Berger D, Malinen E, Pötter R, Petric P. Dosimetric impact of interobserver variability in MRI-based delineation for cervical cancer brachytherapy. *Radiother Oncol* 2013;107:13-19.

17. Nesvacil N, Tanderup K, Hellebust TP, De Leeuw A, Lang S, Mohamed S, Swamidas J, Anderson C, Pötter R, Kirisits C. A multicentre comparison of the dosimetric impact of inter- and intra-fractional anatomical variations in fractionated cervix cancer brachytherapy. *Radiother Oncol* 2013;107:20-25.
18. Siebert FA, Venselaar JLM, Hellebust TP, Papagiannis P, Rijnders A, Rivard MJ. Dose-rate to water calibrations for brachytherapy sources from the end-user perspective. *Metrologia* 2012;49:S249–S252.
19. Guedea F, Venselaar J, Hoskin P, Hellebust TP, Peiffert D, Londres B, Ventura M, Mazon JJ, Limbergen EV, Pötter R, Kovacs G. Pattern of care for brachytherapy in Europe: Updated results. *Radiother Oncol* 2010;97(3):514-520..
20. Hellebust TP, Kirisits C, Berger D, Pérez-Calatayud J, De Brabandere M, De Leeuw A, Dumas I, Hudej R, Lowe G, Wills R, Tanderup K. Recommendations from Gynaecological (GYN) GEC-ESTRO Working Group: Considerations and pitfalls in commissioning and applicator reconstruction in 3D image-based treatment planning of cervix cancer brachytherapy. *Radiother Oncol* 2010;96:153-160.
21. Hellebust TP, Kristensen GB, Olsen DR. Late effect after radiotherapy for locally advanced cervical cancer; comparison of two brachytherapy schedules and investigation of the impact of dose delivered per week. *Int J Radiat Oncol Biol Phys* 2010;76(3):713-8.
22. Tanderup K, Hellebust TP, Lang S et al Consequences of random and systematic reconstruction uncertainties in 3D image based brachytherapy in cervical cancer, *Radiother Oncol* 2008;89(2):156-163.
23. Kirisits C, Frank-André Siebert FA, Baltas D, De Brabandere M, Hellebust TP, Berger D, Venselaar J. Accuracy of volume and DVH parameters determined with different brachytherapy treatment planning systems *Radiother Oncol* 2007;84(3):290-297.
24. Hellebust TP, Tanderup K, Bergstrand ES, Knutsen BH, Røislien J, Olsen DR. Reconstruction of the ring applicator set using CT imaging; impact of reconstruction method and applicator orientation *Phys Med Biol* 2007;52:4893-4904.



25. Tanderup K, Hellebust TP, Honoré HB, Nielsen SK, Olsen DR, Grau C, Lindegaard, JC. Dose optimisation in single plane interstitial brachytherapy. *Radiother Oncol* 2006;81(1):105-111
26. Haie-Meder C, Pötter R, Van Limbergen E, Briot E, De Brabandere M, Dimopoulos J, Dumas I, Hellebust TP, Kirisits C, Lang S. Recommendations from Gynaecological (GYN) GEC-ESTRO Working Group (I): concepts and terms in 3D image based 3D treatment planning in cervix cancer brachytherapy with emphasis on MRI assessment of GTV and CTV. *Radiother Oncol* 2005;74(3): 235-245.
27. Dale E, Bruland ØS, Hellebust TP, Olsen DR. Comparative analyses of the dynamic properties of the human bladder wall studied by repetitive pelvic CT scans of patients and cryo-sections of cadavers. *Br J Radiol* 2005;78:528-32.
28. Dale E, Hellebust TP, Bruland ØS, Olsen DR. Comparative analyses of the dynamic properties of the rectum studied by cryo-sections of the human cadavers and pelvic CT scans of patients. *Br J Radiol* 2003;76:104-108.
29. Johannessen HO, Dale E, Hellebust TP, Olsen DR, Nesland JM, Giercksky KE. Modeling volume effects of experimental brachytherapy in the rat rectum: Uncovering the limitations of a radiobiologic concept. *Int J Radiat Oncol Biol Phys* 2002;53: 1014-1022.
30. Hellebust TP, Dale E, Skjønberg A, Olsen DR. Inter-fraction variation in rectum and bladder volumes and dose distributions during HDR brachytherapy treatment of the uterine cervix investigated by repetitive CT-examination. *Radiother Oncol* 2001;60:273-280.
31. Dale E, Hellebust TP, Skjønberg A, Høgberg T, Olsen DR. Modeling normal tissue complication probability from repetitive CT scans during fractionated HDR brachytherapy and external beam radiotherapy of the uterine cervix. *Int J Radiat Oncol Biol Phys* 2000;47:963-971.
32. Knutsen BH, Skretting A, Hellebust TP, Olsen DR. Determination of 3D dose distribution from intracavitary brachytherapy of cervical cancer by MRI of irradiated ferrous sulphate gel. *Radiother Oncol* 1997;43:219-227.

33. Olsen DR, Paulsen T, Heyerdal H, Tveit KM, Wiig JN, Giercksky KE, Storaas A. Field homogeneity of bevelled intraoperative electron beam cones: The influence of virtual focus surface distance. *Medical Dosimetry* 1995;20:105-109.

#### **BOOK CHAPTERS:**

1. Bert C, Hellebust TP, Siebert FA. Applicator Reconstruction. In: *Emerging technologies in brachytherapy*, eds. W. Song, K. Tanderup and B. Pieters. CRC Press Taylor & Francis Group, Abingdon, UK 2017
2. Hellebust TP, Nesvacil N, Keller H. Imaging for Treatment Verification. In: *Emerging technologies in brachytherapy*, eds. W. Song, K. Tanderup and B. Pieters. CRC Press Taylor & Francis Group, Abingdon, UK 2017
3. Siebert FA, Hellebust TP, Practical use, Limitation, and Quality Control of Imaging in Brachytherapy in “*Comprehensive Brachytherapy, Physical and Clinical Aspects*”, Venselaar J, Baltas D, Meigooni A, Hoskin P (Eds), CRC Press Taylor & Francis Group, Boca Raton, US 2013
4. Hellebust TP, Mirza MR, Radiotherapy For Cervical Cancer in “*ESGO Textbook of Gynaecological Oncology*”, Ayhan A, Reed N, Gultekin M, Dursun P (Eds), Gunes Publishing, Ankara, Turkey 2012
5. Kirisits C, Tanderup K, Hellebust TP, Cormack R, Physics for Image-Guided Brachytherapy in “*Gynecologic Radiation Therapy: Novel Approaches to Image-Guidance and Management*”, Viswanathan A, Erickson B, Kirisits K, Pötter R (Eds), Springer-Verlag Berlin Heidelberg 2011.
6. Hellebust TP, Quality control procedures of afterloading equipment and implants in “*A practical guide to quality control of brachytherapy equipment*”, Venselaar J, Peres J (Eds), Brussels, ESTRO booklet, 2003