Curriculum Vitae

Personal & Contact Details

Ane Appelt, PhD

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Google Scholar, ORCID

Personal Profile

I am a cancer researcher, clinical trialist, and medical physicist. My research focuses on improving patient outcomes through the development and implementation of optimised treatment strategies and novel technological innovations in radiotherapy. Specific interests include reirradiation, radiotherapy for organ preservation, clinical trial design and delivery, and the application of data science in radiation oncology. I am a strong advocate for research that is both clinically relevant and translatable into practice. This includes a core belief in the importance of clinical trials as a critical means for evaluating radiotherapy innovation. I lead a competitively funded, multicentre, randomised dose-escalation trial and am involved in over a dozen other trials. I am primary or co-investigator on active grants totalling over £5.6 million.

Research impact

Developed and standardized **key aspects of modern rectal cancer radiotherapy**, significantly influencing global practice

- I have spearheaded and led clinical evaluations, through prospective trials, of novel treatment techniques and strategies for organ preservation in early rectal cancer. My roles include Chief Investigator (APHRODITE) and Technical Radiotherapy Lead (STAR-TREC, ARTEMIS, Watchful Waiting trials).
- I have explored and quantified the relationship between radiation dose and tumour response in rectal cancer, thereby informing multiple subsequent dose escalation trials worldwide.
- I have played a key role in the implementation and standardisation of IMRT and IGRT for rectal cancer in the UK and Denmark. I currently chair the ESTRO Rectal Cancer IMRT-IGRT guideline writing group and serve as the sole physicist on the ESTRO Lower GI teaching course.

Played a pivotal role in setting **the international agenda in reirradiation**

- I am co-responsible for several technical innovations in reirradiation treatment planning and evaluation, implemented in clinical software releases through collaboration with industry stakeholders. These innovations include a DIR algorithm for large tissue deformations, robust EQD2 dose rescaling, and, in the near future, treatment plan optimisation accounting for previously delivered doses.
- I founded the ESTRO Physics Working Group on Reirradiation, where activities include the development of international consensus guidelines on reirradiation clinical workflows and cumulative dose evaluation methodologies; I am also a core member of the ESTRO Reirradiation Focus Group
- I have designed and led international educational activities in reirradiation, addressing a significant training gap. These activities include a year-long webinar series facilitated by ESTRO, attracting 500-700 attendees per session, and a record-breaking one-day pre-meeting course at ESTRO 2024.
- I have been instrumental in setting the international research agenda through the establishment of the Reirradiation Collaborative Group (ReCOG) with North American and European collaborators, and through contributions to the ESTRO-EORTC Consensus Statement on Reirradiation (Lancet Oncology, 2022).

Championed **the role of medical physicists in clinical trials**

- As joint Chief Investigator on a multicentre, randomised dose-escalation trial in early rectal cancer, I have been spearheading leadership roles for medical physicists in radiotherapy trials.

- I have developed guidance on the role of Medical Physics Experts in clinical trials as a core member of an EFOMP Working Group and have presented on this topic in numerous teaching lectures at national and international meetings.
- I serve as the lead methodologist on several trials, including a phase I TiTE-CRM dose escalation trial in glioblastoma and a pan-European randomised phase III proton-photon trial.

A strong advocate for **patient and public involvement and engagement (PPIE) in radiotherapy research**

- I co-established the Leeds Radiotherapy Research PPIE group, which has provided input to a large number of radiotherapy research projects over the past six years.
- I co-led a two-day workshop for European gynaecological cancer patient advocates on the development of clinical trials.
- I have delivered numerous talks on the opportunities offered by patient involvement in clinical trials, including at the public programme at ESTRO 2022. These efforts have inspired multiple research groups to initiate their own PPIE activities.

Education, Training & Certifications

2025 **Medical Physics Expert Certification**, National Board of Health, Denmark

2019 **Associate Fellowship of the Higher Education Academy**, UK

Teaching qualification recognising excellence within higher education teaching and support to learning, awarded by the Higher Education Academy in the UK

2016 **Clinical Scientist**, UK Health & Care Professions Council

Registration number CS19576

2016 **Medical Physicist Certification**, National Board of Health, Denmark

Post-graduate professional qualification, with specialisation in Radiotherapy

2010 - 2014 **PhD in Oncology**, University of Southern Denmark, Denmark

Thesis *"Bioeffect modelling of clinical outcomes after radiation therapy for individualization of treatment effect estimation and risk prediction"*

2009 - 2014 **Professional training in medical physics and clinical oncology**

Including a wide range of ESTRO courses on radiobiology, radiation oncology, imaging, quantitative modelling, dose modelling; as well as a number of national & international courses on brachytherapy, reference dosimetry, accelerator physics, radioprotection, radiobiological modelling, pre-clinical & clinical cancer research, and biostatistics

2007 - 2009 **Master of Science in Elementary Particle Theory**, University of Durham, UK

Dissertation *"Neutrino Oscillations in Long Baseline Experiments"*

2003 - 2006 **Bachelor of Science in Physics**, University of Southern Denmark, Denmark

Dissertation *"The Quantum Mechanics of Two State Systems"*

Employment

2025 - **Professor of Clinical Medical Physics**, Rigshospitalet & Technical University of Denmark (DTU), Copenhagen, Denmark

Joint appointment, as senior medical physics research lead in Department of Oncology at Rigshospitalet and associated professorship in clinical medical physics at DTU with special focus on radiation oncology.

2025 - **Visiting Professor in Radiotherapy Physics**, University of Leeds, UK

Honorary position to support continued radiotherapy research collaboration

2020 - 2025 **Associate Professor of Radiotherapy Physics**, University of Leeds, UK

Associate Professor at Leeds Institute of Medical Research, School of Medicine. Research portfolio focusing on reirradiation, radiotherapy outcome modelling, rectal cancer organ preservation, and clinical trial design & methodology. Contributions to undergraduate physics teaching and project supervision, as well as postgraduate student supervision. 70% position, with 30% joint appointment as Clinical Scientist at Leeds Teaching Hospitals NHS Trust.

2016 - 2025 **Clinical Scientist**, Leeds Teaching Hospitals NHS Trust, UK

Clinical position as radiotherapy physicist at Department of Medical Physics. Clinical service including day-to-day patient QA, implementation of new treatment protocols, support for clinical trials, R&D project supervision.

2016 - **Adjunct Associate Professor in Radiobiology**, University of Southern Denmark

Honorary position at the Faculty of Health Sciences.

2016 - 2020 **Yorkshire Cancer Research Academic Fellow**, University of Leeds, UK

Fellowship & tenure-track position in radiotherapy research within Leeds Institute of Medical Research, School of Medicine, funded by Yorkshire Cancer Research. Research in radiotherapy outcome modelling and rectal cancer organ preservation.

2015 **Visiting Postdoctoral Researcher**, MD Anderson Cancer Center, Houston, US

3-month stay as part of research collaboration between Rigshospitalet and MD Anderson. Postdoctoral position in Professor Radhe Mohan's group, Department of Radiation Physics. Research focused on in-vivo imaging of biological effects of proton radiotherapy.

2014 - 2016 **Postdoctoral Researcher**, Rigshospitalet, Copenhagen, Denmark

Research on functional image-based normal tissue dose-response models at Department of Oncology. Prospective study of pre- and post-treatment MRI for paediatric patients; image registration and analysis; models for estimation of relative biological effectiveness of proton therapy. Research into advanced, adaptive trial designs for evaluation of new radiotherapy treatment techniques.

2014 - 2016 **Research Scientist**, Vejle Sygehus, Denmark

Part-time (¼) position in the clinical research group lead by Professor Anders Jakobsen, Department of Oncology. Design and realisation of rectal cancer radiotherapy trials; focusing on prospective studies of non-surgical management of rectal cancer and shared decision making in radiotherapy. Major role in the establishment of a Centre of Clinical Excellence in Colorectal Cancer.

2011 **Honorary Research Fellow**, University of Wisconsin, US

2-month stay with Professor Søren Bentzen, Department of Human Oncology. Research on models for radiation dose-response of tumours and normal tissue, fraction-size effects in radiotherapy, and the importance of clinical risk factors in predictive models for cancer outcome.

2009 - 2014 **Medical Physicist**, Vejle Sygehus, Denmark

Clinical position at the Department of Oncology. Responsibilities included radiotherapy treatment planning, brachytherapy treatment planning and delivery, day-to-day treatment verification and QA, limited accelerator dosimetry, development and introduction of novel treatment technologies (e.g. deep-inspiration breath hold for breast cancer and image-guided & adaptive strategies for lung cancer).

Leadership & Service

2024 - **ESTRO Focus Group on Reirradiation - Core Member**

Core member; shaping and informing ESTRO activities on reirradiation.

2023 - **Reirradiation Collaborative Group (ReCOG) - Co-lead**

Founding member, Steering Committee; international group providing a forum for transatlantic collaboration on reirradiation evidence and clinical guidance generation. Inaugural three-day meeting in May 2024.

2023 - 2024 **ESTRO 2024 & 2025 Scientific Advisory Group (SAG) - Member**

Member of the SAG for Radiation Physics; composing the physics track for the ESTRO 2024 and 2025 conferences.

2022 - **ESTRO Physics Workshop & Working Group on Reirradiation - Chair**

Proposed, designed, and co-chaired 2-day international workshop on the technical aspects of reirradiation. Co-chair for subsequent working group; multiple ongoing activities, including international guidelines, multicentre studies, and educational initiatives.

2021 - **PROTECT trial consortium - Work Package Lead**

Work package lead (WP5 - *'Statistics'*) for large EU-funded research consortium on proton therapy for oesophageal cancer.

2020 - 2024 **EFOMP Working Group - Member**

Member of working group *'Role of the Medical Physics Expert in Clinical Trials'*, producing Europe-wide survey and official EFOMP guideline on the role of medical physicists in clinical trials.

2019 - 2029 **CRUK RadNet Leeds Centre of Excellence - Scientific Theme Lead**

Co-lead of *'Reirradiation'* theme (one of three overall themes); as well as co-lead of WS2 *'Multi-faceted treatment personalisation'* (one of six workstreams). Centre renewed for second period of funding in 2024.

2019 - **Danish Centre for Particle Therapy (DCPT) - Scientific Review Committee Member**

One of two external committee members; responsible for prospective review and prioritization of all clinical studies to be conducted at the DCPT.

2019 - 2025 **LeedsCAT Radiotherapy Research Database - Governance Board Member**

Co-founder of a long-term Research Ethics Committee (REC) approved database project, which coordinates and streamlines access to and use of radiotherapy data for research and quality improvement at Leeds Teaching Hospitals Trust.

2018 - 2022 **CTRad - Workstream Member**

Member of Workstream 3 ('Phase III Trials and Methodology') for the *UK Clinical and Translational Radiotherapy Research Working Group* (CTRad).

2015 - 2020 **Centre of Clinical Excellence in Colorectal Cancer - Work Package Co-lead**

Co-lead of WP7 ('*Optimized radiotherapy of rectal cancer: New approaches for individualised and adaptive treatment')* for the Colorectal Cancer Group South, Vejle Hospital, Denmark.

2014 - 2016 **Danish Colorectal Cancer Group (DCCG) Radiotherapy Committee - Member**

National coordinating committee; tasks included development of new national guidelines for target definition, delineation, and treatment planning for rectal cancer radiotherapy.

2012 - **Danish Oncology Lung Cancer Group (DOLG) Radiotherapy Committee - Member**

National coordinating committee; tasks included updates to the national guidelines for target definition, delineation, and treatment planning for lung cancer radiotherapy. Collaboration within the committee resulted in a large, multicentre phase III trial on dose escalation for locally advanced NSCLC.

Trial Leadership

Co-chief Investigator for **APHRODITE: A multi-centre randomised Phase II trial of Higher RadiOtherapy Dose In The Eradication of early rectal cancer**. Leadership of all radiotherapy aspects.

(Co-)responsible for trial design & statistics as well as radiotherapy development and QA for a large number of trials. Member of over a dozen Trial Management Committees, including:

- **PROTECT: Proton versus Photon Therapy for Esophageal Cancer - a Trimodality Strategy** (NCT05055648)

  International phase III trial of neoadjuvant proton therapy for oesophagus cancer. Responsible for all statistical aspects; including trial design, protocol writing, and data analysis plans.

- **Escalated Dose Proton Therapy Within the Multimodality Treatment of Glioblastoma Patients - a phase 1 proton dose finding trial** (NCT05768087)

  Early-phase single centre trial of proton therapy dose escalation for glioblastoma, utilising an advanced model-based (TiTE-CRM) design. Primary responsibility for trial design and statistics, including extensive pre-trial simulation and modelling studies.

- **Watchful Waiting II: Curative Chemoradiation of Low Rectal Cancer** (NCT02438839)

  Multi-centre phase II trial of organ preservation in rectal cancer. Co-responsibility for trial design and development, protocol writing, and study statistics.

- **STAR-TReC: Can we Save the rectum by watchful waiting or TransAnal surgery following (chemo)Radiotherapy versus Total mesorectal excision for early REctal Cancer?** (NCT02945566)

  International phase II/III trial of organ preservation in rectal cancer. Designated trial physicist, responsible for radiotherapy development, including a multi-centre dose-planning study.

- **NARLAL2: Heterogeneous FDG-guided Dose Escalation with Concomitant Navelbine** (NCT02354274)

  International phase III trial of dose escalation in locally advanced NSCLC. Involvement in study development, initial quality assurance, and protocol writing. Co-responsibility for study statistics and sample size calculations. Member of internal study safety monitoring board.

Patient & Public Research Involvement

- Jointly responsible for the establishment of a **Radiotherapy Research Patient and Public Involvement and Engagement** (PPIE) group at the Leeds Cancer Centre (2018 - 2025).
- **ENGAGe Clinical Trials Workshop** (Berlin, Oct 2022): Co-lead for a two-day workshop for European gynaecological cancer patient advocates on the development of clinical trials.
- Multiple **talks on patient involvement in clinical trials**; e.g. at ESTRO 2022 (as part of the programme of public lectures), at the Annual Danish Cancer Research Summit in 2022, and at the Danish National Research Centre for Radiotherapy annual meeting in 2020.

Editorial and Reviewer activity

2023 - 2025 Editorial Board Member *Physics and Imaging in Radiation Oncology (phiRO)*

2021 - Editorial Board Member *Radiotherapy & Oncology*

2021 - Associate Editor *Physica Medica*

Ad-hoc reviewer for numerous journals, including *Radiotherapy & Oncology* (since 2012), *International Journal of Radiation Oncology*Biology*Physics* (since 2013), *Acta Oncologica* (since 2011), *Trials* (since 2014), *Physica Medica* (since 2016), *Journal of Clinical Oncology* (since 2018), *The Lancet Gastroenterology & Hepatology* (since 2018); *The Lancet Oncology* (since 2022)

Grants

2024 - 2029 **CRUK Leeds Radiation Research Centre of Excellence.** Capacity and infrastructure grant from Cancer Research UK. Co-investigator, research theme co-lead (Reirradiation Theme), and workstream lead; PI: David Sebag-Montefiore, University of Leeds, UK. £2,942,164

2025 - 2027 **Repeat radiotherapy offers curative treatment to more patients with cancers in the lungs**

Danish Cancer Society grant for prospective national study of thoracic reirradiation. Co-investigator; PI: Lone Hoffmann, Aarhus University Hospital, DK. 2.4m DKR (~£270,000)

2024 - 2025 **STA:RTUPP: Second Time Around: Reirradiation Treatment Using Photons or Protons**

Programme Development Grant from UK National Institute for Health Research. Co-investigator; PI: Louise Murray, University of Leeds, UK. £149,352

2021 - 2026 **PROTECT: Proton versus Photon Therapy for Esophageal Cancer - a Trimodality Strategy**

Horizon 2020 Innovative Medicines Initiative grant for international phase III trial of proton therapy for oesophageal cancer. Co-investigator; PI: Cai Grau, Aarhus University Hospital, DK. €1.5m (~£1.3m)

2021 - 2023 **DARIUS: Dose Accumulation in ReIrradiation Using Science**

Seed Funding Grant from Cancer Research UK, exploring use of multi-centre radiotherapy data for reirradiation studies. Joint primary investigator. £99,957

2021 - 2024 **AURORA: AGUIX Enhanced RadiOtherapy for Rectal Cancer**

Yorkshire Cancer Research grant for phase I/II trial of a novel nanoparticle for radio-enhancement in locally advanced rectal cancer. Co-investigator; PI: Aaron Quyn, University of Leeds, UK. £448,524

2019 - 2024 **CRUK RadNet Leeds Radiotherapy Centre of Excellence: Personalised, adaptive and novel strategies for brain, liver and pelvic radiotherapy**

Capacity and infrastructure grant from Cancer Research UK. Co-investigator, research theme co-lead (Reirradiation Theme), and workstream lead; PI: David Sebag-Montefiore, University of Leeds, UK. £3.5m

2018 - 2027 **APHRODITE: A Phase II trial of Higher RadiOtherapy Dose In The Eradication of early rectal cancer**

Grant from Yorkshire Cancer Research, for multicentre phase II rectal cancer organ preservation trial. Primary investigator. £583,064

2018 - 2022 **Chemo-radiotherapy as main treatment strategy for rectal cancer**

Grant from Direktør Jens Aage Sørensen og Hustru Edith Ingeborg Sørensens Mindefond, for prospective longitudinal imaging study of patients with locally advanced rectal cancer. Co-investigator; PI: Mette Yilmaz, Aalborg University Hospital, DK. 300,000 DKR (~£36,000)

2018 - 2019 **Pelvic Radiotherapy related toxicity**

Starter grant from Academy of Medical Sciences. Co-Investigator; PI: Alexandra Gilbert, University of Leeds, UK. £24,058.60

2018 - 2019 **STRIDeR: Support Tool for ReIrradiation Decisions guided by Radiobiology**

Confidence-in-Concept grant from the Medical Research Council (UK). Co-investigator; PI: Louise Murray, University of Leeds, UK. £35,691

2017 - 2019 **Optimal use of advanced photon and proton therapy for NSCLC patients. Patient selection and patient specific regimes**

Danish Cancer Society grant. Co-investigator; PI: Olfred Hansen, Odense University Hospital, DK. 2,000,000 DKR (~£240,000)

2016 - 2021 **Patient-focused and individualized radiotherapy using advanced outcome modelling**

5-year personal fellowship from Yorkshire Cancer Research. £288,686

2015 - 2020 **Centre of Clinical Excellence in Colorectal Cancer, Colorectal Cancer Group South, Vejle Hospital**

Grant from Region of Southern Denmark. Co-investigator (work package leader); PI: Anders Jakobsen, Vejle Hospital, DK. 7,500,000 DKR (~£750,000)

2015 - 2016 **Diffusion tensor imaging as a non-invasive measure of the biological effect of radiation to normal structures in the brain**

Danish Childhood Cancer Foundation grant. Co-investigator; PI: Ivan Vogelius, Rigshospitalet, University of Copenhagen, DK. 747,140 DKR (~£74,700)

2011 - 2019 **Various travel grants**

Yorkshire Cancer Research; University of Southern Denmark; CIRRO - The Lundbeck Foundation Center for Interventional Research in Radiation Oncology and The Danish Council for Strategic Research; the Danish Cancer Society; and the Danish Society of Clinical Oncology. Total amount awarded ~£18,500.

2009 - 2013 **PhD scholarships**

Two 1-year scholarships from University of Southern Denmark and Region of Southern Denmark, part-funding PhD study. 1,000,000 DKR (~£100,000)

Awards

2024 **Douglas Lea Lecture**, Institute of Physics and Engineering in Medicine, UK

Invited biennial lecture in memory of Dr Douglas Lea in the field of Physics as applied to biology and medicine, delivered at the UK Imaging and Oncology Conference 2024

2024 **Teacher or Supervisor of the Year** at Faculty of Medicine & Health, University of Leeds

2020 **"ctRO Award" for Best Clinical Poster**, ESTRO 2020

Poster *"Is there a radiation dose-response relationship for non-operative management of rectal cancer?"*. €1000

2017 **Young Physicist of the Year**, Danish Society for Medical Physics

2004 & 2005 **Oticon Scholarships**

Two-time recipient, awarded to outstanding undergraduate physics students at University of Southern Denmark. 2x15,000 kr (~£3,000)

Publications & Talks

Co-author of 86 papers (15 first authorships, 18 as last author); cited 5067 times, h-index 30 (Google Scholar, July 2025). >50 invited talks at national and international meetings; including multiple keynote lectures at international professional society meetings.

Selected papers

- *Multi-centre evaluation of variation in cumulative dose assessment in reirradiation scenarios.* M Hardcastle et al (**AL Appelt** last author). Radiother Oncol 2024;194:110184
- *Treatment plan optimisation for reirradiation*. L Murray et al (**AL Appelt** last author). Radiother Oncol 2023;182:109545
- *European Society for Radiotherapy and Oncology and European Organisation for Research and Treatment of Cancer consensus on re-irradiation: definition, reporting, and clinical decision making.* N Andratschke, J Willmann, **AL Appelt** et al. Lancet Oncol 2022; 23: e469–78
- *International consensus recommendations on key outcome measures of organ preservation after (chemo-)radiotherapy in rectal cancer.* E Fokas & **AL Appelt** (joint first authors) et al. Nature Reviews Clinical Oncology 2021;18(12):805-816
- *Outcome measures in multimodal rectal cancer trials.* E Fokas, R Glynne-Jones, **A Appelt** et al. Lancet Oncol 2020;21(5):e252-e264
- *Heterogeneous FDG-guided dose-escalation for locally advanced NSCLC (the NARLAL2 trial): Design and early dosimetric results of a randomized, multi-centre phase-III study.* DS Møller et al (**AL Appelt** last author). Radiother Oncol 2017;124(2):311-317
- *High-dose chemoradiotherapy and watchful waiting for distal rectal cancer: a prospective observational study.* **AL Appelt** et al. Lancet Oncol 2015;16(8):919-927
- *Radiation dose-response model for locally advanced rectal cancer after pre-operative chemoradiotherapy.* **AL Appelt** et al. Int J Radiat Oncol Biol Phys 2013;85(1):74-80

Selected invited talks

- *Bringing reirradiation into the 21st century.* Keynote lecture, 5th European Congress of Medical Physics, Munich, Germany, 2024
- *Fairness in radiotherapy data use, analysis & outcome modelling.* Invited lecture, ESTRO 2024, Glasgow, UK, 2024
- *Application of technologies in clinical practice - the physicist's role.* Keynote speaker, Nordic Association for Clinical Physics (NACP) biennial meeting, Reykjavik, Iceland, 2023
- *Federated learning for rare cancers: Making data research easier or just distributing the trouble?* Clinical and Experimental Research in Radiation Oncology (CERRO), France, 2024
- *Voxel-level analysis of normal tissue response.* Invited lecture, ESTRO 2022, Copenhagen, Denmark, 2022
- *Patient involvement in clinical trials and research.* ESTRO 2022 (public programme track), Copenhagen, Denmark, 2022
- *What radiotherapy dose do we need to achieve clinical complete response in early and advanced rectal tumours?* Invited lecture, ESTRO 2021, Madrid, Spain, 2021
- *The vital role of physicists in clinical trials: from design to data analysis.* Invited lecture, ESTRO 38, Milan, Italy, 2019

Teaching & Supervision

Teaching & undergraduate supervision

2024 **Re-irradiation – a one-day bootcamp**

Course co-director for interdisciplinary pre-meeting course (PMC) at ESTRO 2024, Glasgow, UK. Developed and organised course; record number of participants for an ESTRO PMC.

2022 - **Quantitative Methods in Radiation Oncology**

Faculty member for ESTRO biannual teaching course, from December 2022 onwards. Lectures covering various aspects of radiotherapy outcome prediction modelling and model evaluation.

2021 - 2025 **Physics BSc 3rd Year Project supervision**

Supervision of individual students for final year projects in Medical Physics, University of Leeds

2020 - 2025 **MEDP2002: Introduction to Medical Physics**

Undergraduate physics module (2nd year) at University of Leeds, from 2020 onwards. Responsible for ¼ of the module content (radiotherapy physics), including exam setting and marking.

2019 **Conservative treatment in early rectal cancer**

Course co-director for interdisciplinary pre-meeting course at ESTRO 28, Milan, Italy.

2019 - **Lower GI: Technical and Clinical Challenges for Radiation Oncologists**

Faculty member for ESTRO biannual teaching course, from March 2019 onwards. Best evaluated lecture of all in 2019.

2016 - 2017 **Principles of Radiotherapy**

Individual lectures for MSc and BSc students in Medical Imaging, University of Leeds

2015 **Applied Statistics in Oncology**

Post-graduate one-day course at University of Southern Denmark. Developed and organized the course; taught half of the lectures; including topics on trial design, pitfalls in analysis of survival data, standard and surrogate endpoints.

2015 **Medical Application of Ionizing Radiation**

MSc-level course at University of Copenhagen; two lectures on basic and clinical radiobiology.

2015 - 2016 **Complexity of Cancer**

College-level course at Danish Institute for Study Abroad, guest lectures on "Introduction to statistics for the medical sciences", January 2015 and 2016.

PhD student supervision

2024 - **Hella Sand**, Medical Physicist

Project title: "Dual Energy CT - a tool for delineation of tumor and organs-at-risk in radiotherapy" External co-supervisor. Aalborg University Hospital & Aalborg University, Denmark

2022 - **Chelmis Thiong'o**, Biomedical Engineer

Project title: "Developing methods to enable reirradiation of patients with head and neck cancer". External co-supervisor. University of Manchester, UK

2019 - 2024 **Dennis Tideman Arp**, Medical Physicist

Project title: "Characterization of patient specific PTV-based on multiple MRI scans before and during treatment to obtain adaptive treatment strategy for dose escalation". Part-time, graduated Sept 2024, with 3 papers published. External co-supervisor. Aalborg University Hospital & Aalborg University, Denmark

2019 - 2023 **Marie Tvilum Chadwick Hede**, Clinical Oncologist

Project title: "Optimal Individual Treatment Strategy for Every Advanced Non-Small Cell Lung Cancer Patient". External co-supervisor. Graduated Nov 2023, with 3 papers published. Aarhus University Hospital & Aarhus University, Denmark

2019 - 2023 **Behnaz Elhaminia**, Computer Science Engineer

Project title: "Machine learning for outcome prediction after pelvic radiotherapy". Co-supervisor; primary clinical supervisor. Graduated Dec 2023, with 3 papers published. University of Leeds, UK

2019 - 2023 **Stelios Theophanous**, Biomedical Scientist

Project title: "Predicting treatment outcome in anal cancer radiotherapy across multiple institutions". Primary supervisor. Graduated June 2023, with 3 papers published. University of Leeds, UK

2016 - 2019 **Charlotte Espensen**, Medical Engineer

Project title: "Individualized optimization of radiotherapy for intraocular tumors. Co-supervisor". Graduated Nov 2019, with 5 resulting published papers. Rigshospitalet & University of Copenhagen, Denmark

Postgraduate thesis assessment

Thesis assessor for six PhDs, one MPhil, and one DClinSci; in the UK, Netherlands and Norway.

Miscellaneous

"Teacher or Supervisor of the Year 2024" at Faculty of Medicine & Health, University of Leeds.

Lectures at The Christie Advanced Radiotherapy Summer School 2021-23; McMedHacks Summer School 2022; ESTRO2021 Physics Pre-Meeting Courses on Clinical trials & Radiobiology for Radiotherapy Physics

External examiner for the Danish Schools of Engineering ("Ingeniøruddannelsernes Censorkorps") 2014-2021.

Internal lectures at St James University Hospital, Leeds, Rigshospitalet, Copenhagen, and Vejle Sygehus, Denmark; including talks on biostatistics for medical physicists, radiobiology, modern radiotherapy of rectal cancer, reirradiation, and dose-response modelling.

Public Engagement & Outreach

Multiple outreach activities for University of Leeds (Be Courious, 2019), Leeds Teaching Hospitals NHS Trust (Radiotherapy Open Day, 2018) and Yorkshire Cancer Research (Volunteer Radiotherapy Tours 2018 & 2019, Research Showcase 2019 & 2021).

Winner of the 2007 *Herbert Prize* (for science communication), Faculty of Natural Sciences, University of Southern Denmark

Art and photography

- Front page photo on the International Journal of Radiation Oncology*Biology*Physics, depicting a cross stich embroidery of a lung SABR dose distribution (*Needlepoint Precision*, vol 114, issue 4, 2022)
- Winning entry in *The Lancet 2019 Highlights* photo competition; photograph published in December 21st 2019 issue of The Lancet.
- Winner of *Science as Art* competition 2018, Leeds Institute of Medical Science at St James's, School of Medicine, University of Leeds; photograph used for permanent wall decoration at University of Leeds
- Front page photo on the International Journal of Radiation Oncology*Biology*Physics, depicting an electron tree produced on decommissioned linear accelerator (*Electron Tree*, vol 87, issue 3, 2013)

Publications (full list)

1. *A comprehensive national audit of radiotherapy retreatment numbers, sites and indications.*
   M Nielsen, VN Hansen , LP Kaplan, M Linaa, MD Lund, MS Nielsen, W Ottosson, C Peucelle, LA Rechner, HS Rønde, T Schytte, WM Szejniuk, RJ Tobin, L Hoffmann & **A Appelt** (joint senior authors). Acta Oncol 2025 (accepted)
2. *Predicting Acute Diarrhoea in Rectal Cancer Chemoradiotherapy: Secondary Analysis of the Phase III ARISTOTLE Trial.*
   Y Zhang, D Brand, Z Shen, M Simard, S Hindocha, O Chohan, A Lopes, R Begum, N West, **A Appelt**, A Gilbert, E Miles, T Maughan, D Sebag-Montefiore, MA Hawkins, C Collin-Fekete. Radiother Oncol 2025 (accepted)
3. *Reirradiation: standards, challenges, and patient-focused strategies across tumor types.*
   A Beddok, J Willmann, A Embring, **A Appelt**, P Balermpas, K Chua, I Choi, BS Elger, D Gabrys, P Hoskin, M Niyazi, D Pasquier, K Paradis, O Person, C Plaisier, N Schmitt, CE Steuer, J Thariat, S Yom, P Poortmans, E Vasquez Osorio, N Andratschke. CA Cancer J Clin 2025 (in press)
4. *Design and pre-trial dose planning quality assurance of the Nordic trial of inhomogeneous dose escalated radiotherapy for patients with limited disease small cell lung cancer: NIELS.*
   S Linde, DS Møller, MB Linaa, **A Appelt**, E Almhagen, KF Hofland, MM Knap, C Kristiansen, LH Land, C Larsen, N Levin, K Lindberg, MD Lund, L Merring-Mikkelsen, TB Nielsen, W Ottosson, GF Persson, HMB Sand, MH Suppli, F Villegas, HH Schmidt, WM Szejniuk, L Hoffmann. Radiother Oncol 2025 (in press)
5. *Dose accumulation for pelvic Stereotactic Ablative Radiotherapy (SABR) reirradiation.*
   F Slevin, C O'Hara, J Entwisle, J Lilley, M Nix, C Thompson, M Tyyger, **AL Appelt** & LJ Murray (joint senior authors). Clin Oncol 2025;43:103861
6. *Evaluating primary tumor position variation for rectal cancer patients treated with long course radiotherapy.*
   DT Arp, **AL Appelt**, R Mikalone, MS Nielsen, LØ Poulsen. Phys Med Biol 2025;70(9):095004.
7. *Neoadjuvant Treatment of Rectal Cancer: A Repeat UK-wide Survey After Implementation of National Intensity Modulated Radiotherapy Guidance.*
   A Macnair, R Adams, **A Appelt**, M Beavon, K Drinkwater, CR Hanna, SM O'Cathail, R Muirhead. Clin Oncol 2025;41:103835.
8. *Toxicity within six months of heterogeneous FDG-guided radiotherapy dose-escalation for locally advanced NSCLC in the Scandinavian randomized phase III NARLAL2 trial.*
   T Schytte, M Knap, C Kristiansen, **AL Appelt**, A Khalil, C Peucelle, CM Lutz, D Slot Møller, EPS Sande, F Sundby, G Persson, L Holm Land, L Rogg, HH Schmidt, M Pøhl, M Lund, M Nielsen, N Levin, O Hansen, R Slot Thing, S Borissova, T Halvorsen, TB Nielsen, TS Hansen, V Drageset Haakensen, W Ottosson, C Brink, L Hoffmann. J Clin Oncol 2025;43(17):1972-1983
9. *Deep learning combining imaging, dose and clinical data for predicting bowel toxicity after pelvic radiotherapy.*
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Editorials, Commentaries, and Letters to the Editor

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