Hans Crezee

Curriculum vitae **(ORCID 0000-0002-7474-0533)**

1986: M.Sc. in experimental physics with experimental work on Medical Physics (Free University, Amsterdam).

1988-1992: Project on representation of blood flow in thermal models used in hyperthermia treatment planning, and experimental evaluation of these models (UMC Utrecht).

1993: PhD thesis 'verification of thermal models' (University of Utrecht).

1992-1997: Development of an interstitial hyperthermia system with spatial power control for improved temperature uniformity in the target region, involved in development of the clinical discrete vessel (DIVA) thermal model (UMC Utrecht).

1997-1999: Clinical application of hyperthermia for brain/prostate implants (UMC Utrecht).

2000-2008: Hyperthermia research at the Department of Radiotherapy of the Academic Medical Center in Amsterdam, focus on system design and treatment planning. Development of 8 antenna deep hyperthermia system for pelvic tumors.

2008-present: Principal Investigator (PI) for hyperthermia research at the Department of Radiotherapy of AMC, responsible for hyperthermia system design and treatment planning. Involved in clinical hyperthermia trials in breast and bladder cancer, preclinical research on working mechanisms of hyperthermia, also for inclusion in biological treatment planning. More than 175 peer reviewed publications, 145 on PubMed, **h-index**(google scholar): **37**, h-index(web of science): **30** (August 2020).

Coordinator for EU project:

- EU H2020 European Training Network (**H2020-MSCA-ITN-2020-955625**) "HYPERBOOST: Hyperthermia boosting the effect of Radiotherapy" (grant 955625, project coordinator J. Crezee: € 3,761,881.56).

Project Leader for 8 and **co-PI** for 3 research projects granted by the Dutch Cancer Society Koningin Wilhelmina Fonds (KWF):

- Development of a dual modality hyperthermia technique for esophageal cancer (J Crezee, N van Wieringen, G van Tienhoven, **AMC 2002-2622:** € 423363.-).
- Optimisation of regional hyperthermia delivery using hyperthermia planning (J Crezee, MCCM Hulshof, JB van de Kamer, **UVA 2006-3484**: € 461914.-).

- Improved temperature reconstruction technique based on treatment planning to be used during superficial hyperthermia (J Crezee, N van Wieringen, G van Tienhoven, **UVA 2007-3841**: € 262000.-).
- Improved treatment delivery using treatment planning and MRI data (J Crezee, AJ Nederveen, LJA Stalpers, **UVA 2010-4660**: € 319600.-).
- Active hot spot suppression to improve thermal dose and clinical outcome of locoregional hyperthermia treatments (J Crezee, HP Kok, LJA Stalpers, **UVA 2012-5393**: € 339300.-).
- Improved bladder temperature monitoring during hyperthermia treatments (J Crezee, MCCM Hulshof, TM de Reijke, **UVA 2012-5539**: € 417000.-).
- MRI based hyperthermia treatment planning for improved hyperthermia delivery in cervical cancer patients (J Crezee, ALHMW van Lier, LJA Stalpers, **UVA 2014-7197**: € 572500.-).
- Irreversible electroporation for locally advanced pancreatic cancer; optimization of clinical treatment by advanced treatment planning (MGH Besselink, J Crezee, TM van Gulik, **UVA 2014-7244**: € 523100.-).
- Hyperthermia induced synthetic lethality combined with PARP1 inhibition to sensitize radiotherapy and CDDP treatment of Cervical cancer (NAP Franken, LJA Stalpers, J Crezee, **UVA 2015-7820**: € 485600.-).
- Development of patient specific treatment planning to enhance and optimize clinical effectiveness of hyperthermic intraperitoneal chemotherapy in colorectal cancer patients (J Crezee, NAP Franken, HP Kok, PJ Tanis project **UVA 2017-10595**: € 563765.-)
- Clinical evaluation of the benefit of planning based steering to improve effectiveness of hyperthermia in cervical cancer patients (HP Kok, J Crezee, LJA Stalpers project **UVA 2017-10873**: € 326486.-)

Other grants:

- Investment grant **NWO-ZonMw** “A dedicated high resolution small animal hyperthermia device to support translation of novel cancer therapies from lab to bedside”, project 40-00506-98-16015, 2016, principal applicant J Crezee, co-applicant NAP Franken: € 443250.
- Children cancer fund **KiKa** project 253 (2016) “Radiotherapy and hyperthermia for children: from concept to breakthrough?”. Project leaders A. Bel, J. Crezee, C.R.N. Rasch, H.J. Merks: € 78762.-.

Scientific and clinical impact:

The impact of his research is enhanced by translation of the in-house developed device into the ALBA-4D loco-regional hyperthermia system, a commercially available hyperthermia system dedicated to treatment of deep-seated tumours. The philosophy of this device is its robust treatment control allowing easy and more widespread use of loco-regional hyperthermia. The ALBA-4D has been installed in multiple European and Asian hospitals.

Co-Promotor for:

- Petra Kok (PhD thesis University of Amsterdam 24 April 2007).
- Martijn de Greef (PhD thesis University of Amsterdam 9 February 2012).
- Edmond Balidemaj (PhD thesis University of Amsterdam 25 May 2016).
- Caspar van Leeuwen (PhD thesis University of Amsterdam 3 July 2018).
- Gerben Schooneveldt (PhD thesis University of Amsterdam 22 October 2019).
- Soraya Gavazzi (PhD thesis University of Utrecht 25 September 2020).

Editorial activities:

- Guest Editor with Brant Inman of special issue *Int. J Hyperthermia* on bladder cancer, 2016
- Section Editor/Editorial Board *International Journal of Hyperthermia* (2017-present)
- guest editor special issue 'Hyperthermia-based Anticancer Treatments' in '*Cancers*', guest editors Nicolaas A.P. Franken, Arlene L. Oei & Johannes Crezee (2019)
- guest editor special issue 'Hyperthermia in Cancer' in '*Cancers*', guest editors H. Petra Kok, Robert Ivkov & Hans Crezee (2020)

Awards:

- Dr. B.B. Singh Award 2010, Indian Association of Hyperthermic Oncology and Medicine
- ESHO-Pyrexar award 2018, European Society for Hyperthermic Oncology