List of publications, abstracts and awards – Dr. Sarah C. Brüningk

Publications in peer reviewed journals

- D. H. Brand, S.C. Brüningk, A. Wilkins, K. Fernandez, O. Naismith et al. « Estimates of Alpha/Beta (α/β) Ratios for Individual Late Rectal Toxicity Endpoints: An Analysis of the CHHiP trial", accepted for publication at International Journal of Radiation Oncology*Biology*Physics
- S.C. Brüningk, I. Rivens, C. Box, U. Oelfke, G. ter Haar, "*3D tumour spheroids for the prediction of the effects of radiation and hyperthermia treatments*", Scientific Reports, vol. 10 (1653) 2020, DOI: 10.1038/s41598-020-58569-4
- S.C. Brüningk, P. Ziegenhein, I. Rivens, S. Nill, G. ter Haar, U. Oelfke, "*A cellular automaton model for spheroid response to radiation and hyperthermia treatments*", Scientific Reports, vol.9 (17674), 2019, DOI: 10.1038/s41598-019-54117-x
- S.C. Brüningk, I. Rivens, P. Mouratidis, G. ter Haar, "*Focused ultrasound mediated hyperthermia in vitro: An experimental arrangement for treating cells under tissue mimicking conditions*", Ultrasound in Medicine and Biology vol.45 (12):3290-3297, 2019, DOI: 10.1016/j.ultrasmedbio.2019.06.410.
- S.C. Brüningk, G. Powathil, P. Ziegenhein, J. Ijaz, I. Rivens, S. Nill, M. Chaplain, U. Oelfke, G. ter Haar, "*Combining radiation with hyperthermia: a multiscale model informed by in vitro experiments*", Journal of the Royal Society: Interface vol.15(138), 2018, DOI: 10.1098/rsif.2017.0681
- S.C. Brüningk, I. Rivens, S. Nill, G. ter Haar, U. Oelfke, "*Response to comment by G. Borasi*", International Journal of Hyperthermia, 2017, DOI: 10.1080/02656736.2017.1362117
- S.C. Brüningk, J. Ijaz, I. Rivens, S. Nill, G. ter Haar, U. Oelfke, "*A comprehensive model for heat-induced radio-sensitization",* International Journal of Hyperthermia, 2017, DOI: 10.1080/02656736.2017.1341059
- S.C. Brüningk, F. Kamp, J.J. Wilkens, "*EUD-based biological optimization for carbon ion therapy*", Medical Physics vol.42(11), 2015, DOI: 10.1118/1.4932219
- F. Kamp, S.C. Brüningk, G.Cabal, A.Mairani, K.Parodi, J.J. Wilkens, "*Variance-based sensitivity analysis of biological uncertainties in carbon ion therapy*", Physica Medica vol.30(5), 2014, DOI: 10.1016/j.ejmp.2014.04.008

Publications in late stages of preparation/submitted/preprints

- S.C. Brüningk, J. Klatt, M. Stange, A. Mari et al. "Determinants of SARS-CoV-2 transmission to guide vaccination strategy in a city", under review at Science, preprint available on medrXive under DOI: 10.1101/2020.12.15.20248130
- S. C. Brüningk, F. Hensel, C. Jutzeler, B. A. Rieck, "Image analysis for Alzheimer's disease prediction: Embracing pathological hallmarks for model architecture design", https://arxiv.org/abs/2011.06531*, 2020*
- S.C. Brüningk, J.Peacock, C.J. Whelan, H.M. Yu, S. Sahabjam, H. Enderling, "Intermittent radiotherapy as alternative treatment for recurrent high grade gliomas: A modelling study based on longitudinal tumor measurements", under review at Scientific Reports, preprint available on medrXive under DOI: 10.1101/2021.01.09.21249317

Awards

- ***Travel award*** *to participate at the Institute of Mathematical Oncology workshop, Tampa, USA, 2019. Part of the winning team that obtained 50k$ for research continuation.*
- ***ICR post-doc travel bursary*** *to attend the annual meeting of the Society for Mathematical Biology, Montreal, Canada, 2019*
- **Nadine Barrie Smith Student Award**, "*A predictive simulation framework for combined focused ultrasound hyperthermia and radiation treatment modelling at a cellular level*", International Conference of Therapeutic Ultrasound, Nanjing, China, 2017
- **Travel Award**, "*A predictive simulation framework for combined focused ultrasound hyperthermia and radiation treatment modelling at a cellular level*", International Conference of Therapeutic Ultrasound, Nanjing, China, 2017
- **Sensius Young Investigator Award**, "*Simulating response to multimodality therapies in vitro – towards modelling of virtual patient treatments*", European conference of Hyperthermic Oncology, Athens, Greece, 2017
- **Best presentation**, "A high performance simulation framework for combination treatments of radiation and Hyperthermia", Workshop on Prediction and Modelling of response to Molecular and External Beam Radiotherapy, Le Bono, France, 2017
- **Poster prize**, "Simulating response to multimodality therapies *in vitro* - towards modelling of virtual patient treatments", The Institute of Cancer Research Annual Meeting, London, UK, 2017
- **New Investigator Travel Award**, "*A comprehensive model of hyperthermia and radiotherapy induced cell death*", International Congress of Hyperthermic Oncology, New Orleans, USA, 2016
- **University of London Scholarship Fund**, "*Multiscale Modelling of Cancer Progression and Radiation Treatment",* European Conference on Mathematical and Theoretical Biology, 2016, Nottingham, UK
- **Best newcomer**, "Biological dosimetry for multimodality therapies", Therapeutic Ultrasound winter school, Les Houches, France, 2015
- **Travel Award**, "*Biological optimisation for carbon ion therapy planning based on the equivalent uniform dose (EUD)",* Joint Conference of the SGSMP, DGMP, OGMP, Zurich, Switzerland, 2014

Invited seminars and workshops

- Society for Mathematical Biology Annual Meeting (SMB) 2020: Invited mini symposium speaker, virtual meeting
- Association of Medical Physics, 61st Annual Meeting (AAPM) 2019: Invited speaker, St. Antonio, US
- International Society for Therapeutic Ultrasound, 19th Annual Symposium (ISTU) 2019:Invited speaker, Barcelona, Spain
- Medical imaging convention (MIC) 2019: Invited speaker, Birmingham, UK
- Society for Mathematical Biology Annual Meeting (SMB) 2019: Invited mini symposium speaker, Montreal, Canada

- "Analysis and simulation of combination treatments of radiation and hyperthermia", seminar at Oxford University, Oxford, UK, 2018
- "Analysis and simulation of combination treatments of radiation and hyperthermia in 3D tumour spheroids", seminar at OncoRay, Dresden, Germany, 2018
- "A high performance simulation framework for combination treatments of radiation and hyperthermia", seminar at Aarhus University, Aarhus, Denmark, 2018
- "Analysis and simulation of in vitro experiments with combination treatments of radiation and hyperthermia", seminar at Fraunhofer MEVIS, Bremen, Germany, 2018
- "A high performance multiscale model for simulating *in vitro* experiments of focused ultrasound mediated heating combined with irradiation", Speaker at the Workshop on Mathematical Medicine and Pharmacology, Swansea, UK, 2017

Conference abstracts (first author)

- S. C. Brüningk, F. Hensel, C. Jutzeler, B. A. Rieck, "Image analysis for Alzheimer's disease prediction: Embracing pathological hallmarks for model architecture design", Machine learning for health at NeurIPS, *virtual meeting, 2020*
- S. C. Brüningk, F. Hensel, C. Jutzeler, B. A. Rieck, "Scalable solutions for MR image classification of Alzheimer's disease", Medical Imaging meets NeurIPS at NeurIPS, *virtual meeting, 2020*
- S. C. Brüningk, "Intermittent radiotherapy as alternative treatment for recurrent high grade gliomas: A modelling study based on longitudinal tumour measurements", Society of Mathematical Biology Annual Meeting, *virtual meeting, 2020*
- S. C. Brüningk, "Therapeutic ultrasound and radiation therapy dose relationships", American Association of Medical Physics, 61st Annual Meeting, San Antonio, USA, 2019
- S. C. Brüningk, "Analysis, quantification and modelling of biological effects induced by combination treatments of radiation and hyperthermia at cell (population) level", International Society for Therapeutic Ultrasound, 19th Annual Symposium, Barcelona, Spain
- S. C. Brüningk, "The role of ultrasound therapy in cancer treatments", Medical imaging convention, Birmingham, UK, 2019
- S.C. Brüningk, *I. Rivens, S. Nill, U. Oelfke, G. ter Haar, "*A systems oncology framework for modelling spheroid response to radiation and hyperthermia treatments*",* Society of Mathematical Biology Annual Meeting, *Montreal, Canada, 2019*
- S.C. Brüningk, *I. Rivens, S. Nill, U. Oelfke, G. ter Haar, "*A systems oncology framework for modelling spheroid response to radiation and hyperthermia treatments*",* International Conference on the Use of Computers in Radiation Therapy, *Montreal, Canada, 2019*
- S.C. Brüningk, I. Rivens, G. Powathil, S. Nill, M. Chaplain, U. Oelfke, G. ter Haar*, "A multiscale model for predicting response of 3D tumour spheroids to combinations of radiation and hyperthermia*", 11th European Conference on Mathematical and Theoretical Biology, Lisbon, Portugal, 2018
- S.C. Brüningk, I. Rivens, S. Nill, U. Oelfke, G. ter Haar, "*Analysis and simulation of the response of 3D tumour spheroids to combination treatments of radiation and hyperthermia*", European conference of Hyperthermic Oncology, Berlin, Germany, 2018
- S.C. Brüningk, M. Costa, C. Box, I. Rivens, S. Nill, U. Oelfke, G. ter Haar, "*3D tumour spheroids as an alternative to clonogenic assays for prediction of radiation response in vivo*", European Society for Radiotherapy and Oncology (ESTRO) 37th Annual Conference, Barcelona, Spain, 2018 (DOI: 10.1016/S0167-8140(18)32644-6, Radiotherapy & Oncology,vol. 127, Supplement 1, p. S1288, 2018)
- S.C. Brüningk, G. Powathil, P. Ziegenhein, I. Rivens, S. Nill, M. Chaplain, U. Oelfke, G. ter Haar, "*A predictive simulation framework for combined focused ultrasound hyperthermia and radiation treatment modelling at a cellular level*", International Conference of Therapeutic Ultrasound, Nanjing, China, 2017 (Journal of Therapeutic Ultrasound, vol. 6, Supplement 1: 2, OP52,2018, DOI: 10.1186/s40349-018-0110-x)
- S.C. Brüningk, G. Powathil, P. Ziegenhein, I. Rivens, S. Nill, M. Chaplain, U. Oelfke, G. ter Haar, "*Simulating response to multimodality therapies in vitro – towards modelling of virtual patient treatments*", European conference of Hyperthermic Oncology, Athens, Greece, 2017
- S.C. Brüningk, I. Rivens, S. Nill, M. Chaplain, G. ter Haar, U. Oelfke, "A unifying cell survival model for hyperthermia, radiation and combination treatments", European conference of Hyperthermic Oncology, Athens, Greece, 2017
- S.C. Brüningk, I. Rivens, A. Inman, S. Nill, U. Oelfke, and G. ter Haar, "*Focused ultrasound mediated hyperthermia in vitro – design, optimization and calibration of an experimental set-up*", Therapeutic Ultrasound Group Meeting, Cheltenham, UK, 2017
- S.C. Brüningk, G. Powathil, P. Ziegenhein, I. Rivens, S. Nill, U. Oelfke, M. Chaplain, G. ter Haar, "*A high performance simulation framework for combination treatments of radiation and*
- *Hyperthermia",* Workshop on Prediction and Modeling of response to Molecular and External Beam Radiotherapy, Le Bono, France, 2017

- S.C. Brüningk, G. Powathil, P. Ziegenhein, I. Rivens, S. Nill, U. Oelfke, M. Chaplain, G. ter Haar, "*A high performance multiscale model for simulating in vitro experiments of focused ultrasound mediated heating combined with irradiation*", Workshop on Mathematical Medicine and Pharmacology, Swansea, UK, 2017
- S.C. Brüningk, I. Rivens, S. Nill, U. Oelfke , G. ter Haar, "Simulating response to multimodality therapies *in vitro* - towards modelling of virtual patient treatments", The Institute of Cancer Research Annual Meeting, London, UK, 2017
- S.C. Brüningk, I. Rivens, S. Nill, G. ter Haar, U. Oelfke, "*A comprehensive model of hyperthermia and radiotherapy induced cell death*", International Congress of Hyperthermic Oncology, New Orleans, USA, 2016
- S. Brueningk, G. Powathil, I. Rivens, J. Ijaz, U. Oelfke, M. Chaplain, and G. ter Haar, "*A hybrid multiscale model to simulate in vitro experiments of focused ultrasound mediated heating combined with radiotherapy*", Therapeutic Ultrasound Group Meeting, York, UK, 2016
- S. Brüningk, G. Powathil, P. Ziegenhein, J. Ijaz, I. Rivens, S. Nill, M. Chaplain, U. Oelfke, G. ter Haar, "*Multiscale Modelling of Cancer Progression and Radiation Treatment",* European Conference on Mathematical and Theoretical Biology, 2016, Nottingham, UK
- S.C. Brüningk, F. Kamp, J.J. Wilkens, "*Biological optimisation for carbon ion therapy planning based on the equivalent uniform dose (EUD)",* Joint Conference of the SGSMP, DGMP, OGMP, Zurich, Switzerland, 2014
- S.C. Brüningk, F. Kamp, J.J. Wilkens, "*Equivalent uniform dose (EUD) based biological optimization for carbon ion therapy",* Radiotherapy and Oncology vol. 110 (Suppl. 1), 2014, DOI:10.1016/S0167-8140(15)34055-X, International Conference on Translational Research in Radiation Oncology/Physics for Health in Europe, Geneva, Switzerland