Scientific Curriculum Vitae

Personal Information

Name	Peter Kuess
Degrees	Priv. Doz. Mag. rer. nat., PhD
	Researcher Profile MUW
ORCID	0000-0003-2961-1692
Email	peter.kuess@meduniwien.ac.at
Institution	Division Medical Radiation Physics Department of Radiation Oncology Medical University of Vienna

Senior medical physicist at the Medical University of Vienna, working at the interface of radiation dosimetry, quantitative imaging, and machine learning for clinical radiation oncology. Author of 60+ peer-reviewed publications across photon and particle therapy.

Main Research Fields

Dosimetry — Photons (kV & MV), Protons, Carbon Ions

Image Processing — Radiomics, Textural Analysis, Deep Learning

Automation in Radiation Oncology

Preclinical Research

Summary of Scientific Work

PAPERS	**62** Total	**20** First & Last Author	**42** Co-authored
IMPACT	**19** H-index (Scopus)	**~1200** Citations	**~90** Conference contributions

Teaching & Supervision

Teaching	MUW PhD Programme	13 SWS
	MUW Medical Degree Programme	21 SWS
	Technical University of Vienna	8 lectures
	FH Wiener Neustadt	8 lectures
Supervision	BSc students supervised / co-supervised	6
	MSc students supervised / co-supervised	22

Education

06/2023 **Venia docendi (*Habilitation*)**, *Medical University of Vienna.*
Medical Physics

12/2018 **Fachanerkennung für Medizinische Physik**.
Job title "Medizinphysiker"

10/2009–06/2014 **PhD in Medical Physics**, *Medical University of Vienna.*
Automated analysis of positron emission tomography (PET) based in-vivo monitoring in hadron therapy; Supervisor: Prof. Dr. Dietmar Georg

2003–2009 **Diploma Study in Physics**, *University of Vienna.*

Professional Experience

since 12/2014 **Postdoctoral Researcher**, *Medical University of Vienna.*
Department of Radiation Oncology, Division of Medical Physics.
Part-time Medical Physicist at EBG MedAustron (02/2018–07/2022)

02/2010–11/2014 **Scientific Assistant**, *Medical University of Vienna.*
Department of Radiation Oncology, Division of Medical Physics
employed within the ENVISION project

Grant Activities

since 04/2025 **PI** in Hippocrates – Automated MR segmentation and synthetic CT generation for MR-only workflow; **€ 75,000**

since 10/2024 Heilemann G (PI), **Kuess P** (Project Participant) – Autonomous Radiotherapy Planning (*Grant DOI: 10.55776/PAT2673523*); **€ 320,351**

Professional Societies

Austrian Society for Medical Physics (ÖGMP)

Scientific Committee Member of the Alpe Adria Medical Physics Meeting

Collaboration Partners

Academic & Clinical: TU Wien, MedAustron, University of Vienna, University of Umeå, UC Louvain, Hochschule Campus Wien, FH Wiener Neustadt, FH Gesundheitsberufe Oberösterreich - Campus Linz, National Physics Laboratory London, University of Novi Sad – Oncology Institute of Vojvodina

Industry: Therapanacea, IBA Dosimetry, RaySearch Laboratories

Review Activities

- IEEE Transactions on Medical Imaging
- Computers in Biology and Medicine
- Radiotherapy and Oncology
- Cancers
- Medical Physics
- Physics in Medicine and Biology
- Acta Oncologica
- Strahlentherapie und Onkologie
- Physica Medica
- Physics and Imaging in Radiation Oncology
- Journal of Applied Medical Physics
- Biomedical Physics and Engineering Express
- Zeitschrift für Medizinische Physik
- Nucl. Inst. Meth. Phys. Res. B

Complete List of Publications

[1] S. Helmbrecht, A. Santiago, W. Enghardt, P. **Kuess**, and F. Fiedler. "On the feasibility of automatic detection of range deviations from in-beam PET data." *Phys. Med. Biol.* 57 (2012), pp. 1387–97. DOI: 10.1088/0031-9155/57/5/1387.

[2] P. **Kuess**, W. Birkfellner, W. Enghardt, S. Helmbrecht, F. Fiedler, and D. Georg. "Using statistical measures for automated comparison of in-beam PET data." *Med. Phys.* 39 (2012), pp. 5874–81. DOI: 10.1118/1.4749962.

[3] J. Góra, J. Hopfgartner, P. **Kuess**, B. Paskeviciute, and D. Georg. "Is there room for combined modality treatments? Dosimetric comparison of boost strategies for advanced head and neck and prostate cancer". *J. Radiat. Res.* 54 Suppl 1 (2013), pp. i97–112. DOI: 10.1093/jrr/rrt067.

[4] P. **Kuess**, S. Helmbrecht, F. Fiedler, W. Birkfellner, W. Enghardt, J. Hopfgartner, and D. Georg. "Automated evaluation of setup errors in carbon ion therapy using PET: feasibility study." *Med. Phys.* 40 (2013), p. 121718. DOI: 10.1118/1.4829595.

[5] D. Georg, J. Hopfgartner, J. Góra, P. **Kuess**, G. Kragl, D. Berger, N. Hegazy, G. Goldner, and P. Georg. "Dosimetric considerations to determine the optimal technique for localized prostate cancer among external photon, proton, or carbon-ion therapy and high-dose-rate or low-dose-rate brachytherapy". *Int. J. Radiat. Oncol. Biol. Phys.* 88 (2014), pp. 715–722. DOI: 10.1016/j.ijrobp.2013.11.241.

[6] P. **Kuess**, E. Bozsaky, J. Hopfgartner, G. Seifritz, W. Dörr, and D. Georg. "Dosimetric challenges of small animal irradiation with a commercial X-ray unit". *Z. Med. Phys.* 24 (2014), pp. 363–372. DOI: 10.1016/j.zemedi.2014.08.005.

[7] P. Andrzejewski, P. **Kuess**, B. Knäusl, K. Pinker, P. Georg, J. Knoth, D. Berger, C. Kirisits, G. Goldner, T. Helbich, R. Pötter, and D. Georg. "Feasibility of dominant intraprostatic lesion boosting using advanced photon-, proton- or brachytherapy." *Radiother. Oncol.* 117 (2015), pp. 509–514. DOI: 10.1016/j.radonc.2015.07.028.

[8] J. Góra, P. **Kuess**, M. Stock, P. Andrzejewski, B. Knäusl, B. Paskeviciute, G. Altorjai, and D. Georg. "ART for head and neck patients: On the difference between VMAT and IMPT". *Acta Oncol.* 54 (2015), pp. 1166–1174. DOI: 10.3109/0284186X.2015.1028590.

[9] S. Helmbrecht, P. **Kuess**, W. Birkfellner, W. Enghardt, K. Stützer, D. Georg, and F. Fiedler. "Systematic analysis on the achievable accuracy of PT-PET through automated evaluation techniques". *Z. Med. Phys.* 25 (2015), pp. 146–155. DOI: 10.1016/j.zemedi.2014.08.004.

[10] K. Frings, S. Gruber, P. **Kuess**, M. Kleiter, and W. Dörr. "Modulation of radiation-induced oral mucositis by thalidomide : Preclinical studies". *Strahlenther. Onkol.* 192 (2016), pp. 561–568. DOI: 10.1007/s00066-016-0989-5.

[11] P. **Kuess**, D. Georg, H. Palmans, and W. Lechner. “Technical Note: On the impact of the incident electron beam energy on the primary dose component of flattening filter free photon beams”. *Med. Phys.* 43 (2016), pp. 4507–4513. DOI: `10.1118/1.4954849`.

[12] S. Walsh, E. Roelofs, P. **Kuess**, P. Lambin, B. Jones, D. Georg, and F. Verhaegen. “A validated tumor control probability model based on a meta-analysis of low, intermediate, and high-risk prostate cancer patients treated by photon, proton, or carbon-ion radiotherapy”. *Med. Phys.* 43 (2016), pp. 734–747. DOI: `10.1118/1.4939260`.

[13] N. Kostiukhina, D. Georg, S. Rollet, P. **Kuess**, A. Sipaj, P. Andrzejewski, H. Furtado, I. Rausch, W. Lechner, E. Steiner, H. Kertész, and B. Knäusl. “Advanced Radiation DOSimetry phantom (ARDOS): a versatile breathing phantom for 4D radiation therapy and medical imaging”. *Phys. Med. Biol.* 62 (2017), pp. 8136–8153. DOI: `10.1088/1361-6560/aa86ea`.

[14] P. **Kuess**, P. Andrzejewski, D. Nilsson, P. Georg, J. Knoth, M. Susani, J. Trygg, T. H. Helbich, S. H. Polanec, D. Georg, and T. Nyholm. “Association between pathology and texture features of multi parametric MRI of the prostate”. *Phys. Med. Biol.* 62 (2017), pp. 7833–7854. DOI: `10.1088/1361-6560/aa884d`.

[15] P. **Kuess**, T. T. Böhlen, W. Lechner, A. Elia, D. Georg, and H. Palmans. “Lateral response heterogeneity of Bragg peak ionization chambers for narrow-beam photon and proton dosimetry”. *Phys. Med. Biol.* 62 (2017), pp. 9189–9206. DOI: `10.1088/1361-6560/aa955e`.

[16] W. Lechner, P. **Kuess**, D. Georg, and H. Palmans. “Equivalent (uniform) square field sizes of flattening filter free photon beams”. *Phys. Med. Biol.* 62 (2017), pp. 7694–7713. DOI: `10.1088/1361-6560/aa83f5`.

[17] M. Linke, H. T. T. Pham, K. Katholnig, T. Schnöller, A. Miller, F. Demel, B. Schütz, M. Rosner, B. Kovacic, N. Sukhbaatar, B. Niederreiter, S. Blüml, P. **Kuess**, V. Sexl, M. Müller, M. Mikula, W. Weckwerth, A. Haschemi, M. Susani, M. Hengstschläger, M. J. Gambello, and T. Weichhart. “Chronic signaling via the metabolic checkpoint kinase mTORC1 induces macrophage granuloma formation and marks sarcoidosis progression”. *Nat. Immunol.* 18 (2017), pp. 293–302. DOI: `10.1038/ni.3655`.

[18] A. Garpebring, P. Brynolfsson, P. **Kuess**, D. Georg, T. H. Helbich, T. Nyholm, and T. Löfstedt. “Density estimation of grey-level co-occurrence matrices for image texture analysis”. *Phys. Med. Biol.* 63 (2018), p. 195017. DOI: `10.1088/1361-6560/aad8ec`.

[19] S. Gruber, M. Arnold, N. Cini, V. Gernedl, S. Hetzendorfer, L.-M. Kowald, P. **Kuess**, J. Mayer, S. Morava, S. Pfaffinger, A. Rohorzka, and W. Dörr. “Radioprotective Effects of Dermatan Sulfate in a Preclinical Model of Oral Mucositis—Targeting Inflammation, Hypoxia and Junction Proteins without Stimulating Proliferation”. *Int. J. Mol. Sci.* 19 (2018), p. 1684. DOI: `10.3390/ijms19061684`.

[20] S. Gruber, N. Cini, L.-M. Kowald, J. Mayer, A. Rohorzka, P. **Kuess**, and W. Dörr. “Upregulated epithelial junction expression represents a novel parameter of the epithelial radiation response to fractionated irradiation in oral mucosa”. *Strahlenther. Onkol.* 194 (2018), pp. 771–779. DOI: `10.1007/s00066-018-1302-6`.

[21] S. Gruber, K. Frings, P. **Kuess**, and W. Dörr. “Protective effects of systemic dermatan sulfate treatment in a preclinical model of radiation-induced oral mucositis”. *Strahlenther. Onkol.* 194 (2018), pp. 675–685. DOI: `10.1007/s00066-018-1280-8`.

[22] S. Khachonkham, R. Dreindl, G. Heilemann, W. Lechner, H. Fuchs, H. Palmans, D. Georg, and P. **Kuess**. “Characteristic of EBT-XD and EBT3 radiochromic film dosimetry for photon and proton beams”. *Phys. Med. Biol.* 63 (2018), p. 065007. DOI: `10.1088/1361-6560/aab1ee`.

[23] M. Khan, G. Heilemann, P. **Kuess**, D. Georg, and A. Berg. "The impact of the oxygen scavenger on the dose-rate dependence and dose sensitivity of MAGIC type polymer gels". *Phys. Med. Biol.* 63 (2018), 06NT01. DOI: 10.1088/1361-6560/aab00b.

[24] M. Kowaliuk, E. Bozsaky, S. Gruber, P. **Kuess**, and W. Dörr. "Systemic administration of heparin ameliorates radiation-induced oral mucositis—preclinical studies in mice". *Strahlenther. Onkol.* 194 (2018), pp. 686–692. DOI: 10.1007/s00066-018-1300-8.

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[26] S. Walsh, E. Roelofs, P. **Kuess**, Y. Van Wijk, B. Vanneste, A. Dekker, P. Lambin, B. Jones, D. Georg, and F. Verhaegen. "Towards a clinical decision support system for external beam radiation oncology prostate cancer patients: Proton vs. photon radiotherapy? a radiobiological study of robustness and stability". *Cancers* 10 (2018), p. 55. DOI: 10.3390/cancers10020055.

[27] M. Clausen, S. Khachonkham, S. Gruber, P. **Kuess**, R. Seemann, B. Knäusl, E. Mara, H. Palmans, W. Dörr, and D. Georg. "Phantom design and dosimetric characterization for multiple simultaneous cell irradiations with active pencil beam scanning". *Radiat. Environ. Biophys.* 58 (2019), pp. 563–573. DOI: 10.1007/s00411-019-00813-1.

[28] M. Daniel, P. **Kuess**, P. Andrzejewski, T. Nyholm, T. Helbich, S. Polanec, F. Dragschitz, G. Goldner, D. Georg, and P. Baltzer. "Impact of androgen deprivation therapy on apparent diffusion coefficient and T2w MRI for histogram and texture analysis with respect to focal radiotherapy of prostate cancer". *Strahlenther. Onkol.* 195 (2019), pp. 402–411. DOI: 10.1007/s00066-018-1402-3.

[29] M. Kowaliuk, I. Schröder, P. **Kuess**, and W. Dörr. "Heparin treatment mitigates radiation-induced oral mucositis in mice by interplaying with repopulation processes". *Strahlenther. Onkol.* 195 (2019), pp. 534–543. DOI: 10.1007/s00066-018-01423-4.

[30] P. **Kuess**, T. T. Böhlen, W. Lechner, A. Elia, D. Georg, and H. Palmans. "Reply to Comment on "Lateral response heterogeneity of Bragg peak ionization chambers for narrow-beam photon and proton dosimetry"". *Phys. Med. Biol.* 64 (2019), p. 198002. DOI: 10.1088/1361-6560/ab3ba0.

[31] F. Padilla-Cabal, P. **Kuess**, D. Georg, H. Palmans, L. Fetty, and H. Fuchs. "Characterization of EBT3 radiochromic films for dosimetry of proton beams in the presence of magnetic fields". *Med. Phys.* 46 (2019), pp. 3278–3284. DOI: 10.1002/mp.13567.

[32] S. Sarsarshahi, Z. Madjd, E. Bozsaky, J. Kowaliuk, P. **Kuess**, M. H. Ghahremani, and W. Dörr. "An evaluation of the effect of bortezomib on radiation-induced urinary bladder dysfunction". *Strahlenther. Onkol.* 195 (2019), pp. 934–939. DOI: 10.1007/s00066-019-01497-8.

[33] L. Fetty, M. Bylund, P. **Kuess**, G. Heilemann, T. Nyholm, D. Georg, and T. Löfstedt. "Latent Space Manipulation for High-Resolution Medical Image Synthesis via the StyleGAN". *Z. Med. Phys.* 30 (2020), pp. 305–314. DOI: 10.1016/j.zemedi.2020.05.001.

[34] L. Fetty, T. Löfstedt, G. Heilemann, H. Furtado, N. Nesvacil, T. Nyholm, D. Georg, and P. **Kuess**. "Investigating conditional GAN performance with different generator architectures, an ensemble model, and different MR scanners for MR-sCT conversion". *Phys. Med. Biol.* 65 (2020), p. 105004. DOI: 10.1088/1361-6560/ab857b.

[35] H. Fuchs, A. Elia, A. Resch, P. **Kuess**, and D. Georg. "Computer assisted beam modeling for particle therapy". *Med. Phys.* 48 (2020), pp. 841–851. DOI: 10.1002/mp.14647.

[36] S. Khachonkham, E. Mara, S. Gruber, R. Preuer, P. **Kuess**, W. Dörr, D. Georg, and M. Clausen. "RBE variation in prostate carcinoma cells in active scanning proton beams in vitro measurements in comparison with phenomenological models". *Physica Med.* 77 (2020), pp. 187–193. DOI: 10.1016/j.ejmp.2020.08.012.

[37] J. Kowaliuk, S. Sarsarshahi, J. Hlawatsch, A. Kastsova, M. Kowaliuk, A. Krischak, P. **Kuess**, L. Duong, and W. Dörr. "Translational Aspects of Nuclear Factor-Kappa B and Its Modulation by Thalidomide on Early and Late Radiation Sequelae in Urinary Bladder Dysfunction". *Int. J. Radiat. Oncol. Biol. Phys.* 107 (2020), pp. 377–385. DOI: 10.1016/j.ijrobp.2020.01.028.

[38] P. **Kuess**, S. Haupt, J. Osorio, L. Grevillot, H. Fuchs, D. Georg, and H. Palmans. "Characterization of the PTW-34089 type 147 mm diameter large-area ionization chamber for use in light-ion beams". *Phys. Med. Biol.* 65 (2020), 17NT02. DOI: 10.1088/1361-6560/ab9852.

[39] E. Mara, M. Clausen, S. Khachonkham, S. Deycmar, C. Pessy, W. Dörr, P. **Kuess**, D. Georg, and S. Gruber. "Investigating the impact of alpha/beta and LET_d on relative biological effectiveness in scanned proton beams: An in vitro study based on human cell lines". *Med. Phys.* 47 (2020), mp.14212. DOI: 10.1002/mp.14212.

[40] S. Irmak, L. Fetty, D. Georg, P. **Kuess**, and W. Lechner. "Cone beam CT based validation of neural network generated synthetic CTs for radiotherapy in the head region". *Med. Phys.* 48 (2021), pp. 4560–4571. DOI: 10.1002/mp.14987.

[41] P. **Kuess**, W. Lechner, D. Georg, and H. Palmans. "Reply to comment on 'Lateral response heterogeneity of Bragg peak ionization chambers for narrow-beam photon and proton dosimetry'". *Phys. Med. Biol.* 66 (2021), p. 168001. DOI: 10.1088/1361-6560/AC16BF.

[42] J. Osorio, R. Dreindl, L. Grevillot, V. Letellier, P. **Kuess**, A. Carlino, A. Elia, M. Stock, S. Vatnitsky, and H. Palmans. "Beam monitor calibration of a synchrotron-based scanned light-ion beam delivery system". *Z. Med. Phys.* 31 (2021), pp. 154–165. DOI: 10.1016/j.zemedi.2020.06.005.

[43] L. Zimmermann, M. Buschmann, H. Herrmann, G. Heilemann, P. **Kuess**, T. Nyholm, D. Georg, and N. Nesvacil. "An MR only acquisition and artificial intelligence based image processing protocol for photon and proton therapy using a low field MR". *Z. Med. Phys.* 31 (2021), pp. 78–88. DOI: 10.1016/j.zemedi.2020.10.004.

[44] G. Heilemann, M. Matthewman, P. **Kuess**, G. Goldner, J. Widder, D. Georg, and L. Zimmermann. "Can Generative Adversarial Networks help to overcome the limited data problem in segmentation?" *Z. Med. Phys.* 32 (2022), pp. 361–368. DOI: 10.1016/j.zemedi.2021.11.006.

[45] P. **Kuess**, N. Sejkora, A. Klampfer, S. Madlener, P. Weiss, S. Schmied, D. Georg, S. Özdemir-Fritz, G. Grömer, and A. Hirtl. "Characterising novel space suit textiles in proton beams using radiotherapy-based dosimetry". *Adv. Space Res.* (2022). DOI: 10.1016/j.asr.2022.06.058.

[46] A. F. Resch, F. P. Cabal, M. Regodic, W. Lechner, G. Heilemann, P. **Kuess**, D. Georg, and H. Palmans. "Accelerating and improving radiochromic film calibration by utilizing the dose ratio in photon and proton beams". *Med. Phys.* (2022). DOI: 10.1002/mp.15828.

[47] L. Zimmermann, B. Knäusl, M. Stock, C. Lütgendorf-Caucig, D. Georg, and P. **Kuess**. "An MRI sequence independent convolutional neural network for synthetic head CT generation in proton therapy". *Z. Med. Phys.* 32 (2022), pp. 218–227. DOI: 10.1016/j.zemedi.2021.10.003.

[48] H. Fuchs, L. Zimmermann, N. Reisz, M. Zeilinger, A. Ableitinger, D. Georg, and P. **Kuess**. "Efficient full Monte Carlo modelling and multi-energy generative model development of an advanced X-ray device". *Z. Med. Phys.* 33 (2023), pp. 135–145. DOI: 10.1016/j.zemedi.2022.04.006.

[49] G. Heilemann, L. Zimmermann, R. Schotola, W. Lechner, M. Peer, J. Widder, G. Goldner, D. Georg, and P. **Kuess**. “Generating deliverable DICOM RT treatment plans for prostate VMAT by predicting MLC motion sequences with an encoder-decoder network”. *Med. Phys.* 50 (2023), pp. 5088–5094. DOI: `10.1002/mp.16545`.

[50] B. Knäusl, P. **Kuess**, M. Stock, D. Georg, P. Fossati, P. Georg, and L. Zimmermann. “Possibilities and challenges when using synthetic computed tomography in an adaptive carbon-ion treatment workflow”. *Z. Med. Phys.* 33 (2023), pp. 146–154. DOI: `10.1016/j.zemedi.2022.05.003`.

[51] L. Chen, P. Platzer, C. Reschl, M. Schafasand, A. Nachankar, C. L. Hajdusich, P. **Kuess**, M. Stock, S. Habraken, and A. Carlino. “Validation of a deep-learning segmentation model for adult and pediatric head and neck radiotherapy in different patient positions”. *Phys. Imaging Radiat. Oncol.* 29 (2024), p. 100527. DOI: `10.1016/j.phro.2023.100527`.

[52] H. Fuchs, H. Palmans, G. Heilemann, D. Zuschlag, D. Georg, and P. **Kuess**. “Dosimetry in MRgPT: Impact of magnetic fields on TLD dose response during proton irradiation”. *Med. Phys.* 52 (2024), pp. 633–639. DOI: `10.1002/mp.17454`.

[53] A. M. Grandits, B. A. Reinoehl, R. Wagner, P. **Kuess**, F. Eckert, A. S. Bergmeister-Berghoff, T. Fuereder, and R. Wieser. “SKA1 promotes oncogenic properties in oral dysplasia and oral squamous cell carcinoma and augments resistance to radiotherapy”. *Mol. Oncol.* (2024). DOI: `10.1002/1878-0261.13780`.

[54] A. Laemmerer, C. Lehmann, L. Mayr, K. Bruckner, L. Gabler, D. Senfter, P. Meyer, T. Balber, C. Pirker, C. N. Jaunecker, D. Kirchhofer, P. Vician, M. Griesser, S. Spiegl-Kreinecker, M. T. Schmook, T. Traub-Weidinger, P. **Kuess**, F. Eckert, A. Federico, S. Madlener, N. Stepien, B. Robl, A. Baumgartner, J. A. Hainfellner, K. Dieckmann, C. Dorfer, K. Roessler, N. S. Corsini, K. Holzmann, W. M. Schmidt, A. Peyrl, A. A. Azizi, C. Haberler, A. Beck, S. M. Pfister, J. Schueler, D. Loetsch-Gojo, J. A. Knoblich, W. Berger, and J. Gojo. “Alternative lengthening of telomere-based immortalization renders H3G34R -mutant diffuse hemispheric glioma hypersensitive to PARP inhibitor combination regimens”. *Neuro-Oncol.* (2024). DOI: `10.1093/neuonc/noae228`.

[55] W. Lechner, B. Knäusl, J. Brunner, D. Georg, and P. **Kuess**. “A phantom for 2D dose measurements in the vicinity of metal implants for photon and proton beams”. *Front. Phys.* (2024). DOI: `10.3389/fphy.2024.1433208`.

[56] M. Moll, G. Heilemann, D. Georg, D. Kauer-Dorner, and P. **Kuess**. “The role of artificial intelligence in informed patient consent for radiotherapy treatments – a case report”. *Strahlenther. Onkol.* (2024). DOI: `10.1007/s00066-023-02190-7`.

[57] I. Abdarahmane, L. Wolf, P. **Kuess**, G. Heilemann, S. Stocchiero, B. Knäusl, I. Feinerer, M. Zeilinger, and D. Georg. “An open-source irradiation and data-handling framework for pre-clinical ion-beam research”. *Z. Med. Phys.* (2025). DOI: `10.1016/j.zemedi.2025.08.002`.

[58] G. Heilemann, L. Zimmermann, T. Nyholm, A. Simko, J. Widder, G. Goldner, D. Georg, and P. **Kuess**. “Ultra-fast, one-click radiotherapy treatment planning outside a treatment planning system”. *Phys. Imaging Radiat. Oncol.* (2025), p. 100724. DOI: `10.1016/j.phro.2025.100724`.

[59] V. Schwingenschlögl-Maisetschläger, X. M. Vila, I. Duman, C. Okuducu, P. **Kuess**, M. Hacker, C. Kraule, A. Teuschl-Woller, and V. Pichler. “Sustainable and standardized fabrication, recycling, and sterilization of salt-bed casted silk fibroin sponges”. *Int. J. Biol. Macromol.* (2025), p. 144212. DOI: `10.1016/j.ijbiomac.2025.144212`.

[60] L. Wolf, P. **Kuess**, S. Leitner, D. Georg, and B. Knäusl. “Commissioning of a precision preclinical 200 kV x-ray irradiator based on modular adaptations”. *Med. Phys.* (2025). DOI: `10.1002/mp.17758`.

[61] M. Orts, S. Rossome, K. Souris, V. de Beco, T. Haas, N. Durny, G. Houyoux, S. Penninckx, P. **Kuess**, H. Palmans, V. Vanreusel, P. Montay-Gruel, L. Verpoest, and E. Sterpin. “The Dual Gap Ionization Chamber: A novel Ionization Chamber design for reference dosimetry to automatically correct for recombination losses in emerging radiotherapy modalities”. *Phys. Med. Biol.* (2026). DOI: 10.1088/1361-6560/ae3b05.

[62] L. Verpoest, S. Rossomme, P. Kuess, H. Palmans, S. Lorentini, K. Souris, and J. Lee. “Experimental determination of beam quality correction factors in scanned proton beams using water calorimetry”. *Phys. Med. Biol.* (2026). DOI: 10.1088/1361-6560/ae387d.

Submitted Manuscripts

[1] P. **Kuess**, B. Knäusl, S. R. Helletzgruber, D. Georg, H. Palmans, and W. Lechner. “Benchmarking EBT4 radiochromic films for photon and proton beam dosimetry”. *submitted to Phys. Imaging Radiat. Oncol.* (2025).

[2] L. Martin, P. **Kuess**, B. Knäusl, D. Georg, L. Wolf, N. Gambino, F. Farinon, A. Prochazka, M. Schafasand, M. Stock, and H. Fuchs. “Helium pencil beam commissioning and beam modeling”. *submitted to Phys. Imaging Radiat. Oncol.* (2026).

[3] L. Verpoest, S. Rossomme, K. Souris, T. Tessonnier, A. Mairani, I. Muñoz, S. Brons, O. Jäkel, K.-S. Baumann, H. Fuchs, P. **Kuess**, A. Douralis, A. Lourenço, H. Palmans, and J. Lee. “Water calorimetry-based beam quality correction factors for carbon and helium ion beams”. *submitted to Phys. Med. Biol.* (2026).

Teaching

Values in parentheses indicate own SWS contribution.

MUW PhD Programme

SS2015	Doctoral Students Seminar: Radiation Physics Applications in Radiation Oncology *2 SWS (1)*
WS2015	Doctoral Students Seminar: Ion Beam Therapy *2 SWS (0.5)*
SS2016	Basic Seminar: Physical Fundamentals of Radiation Oncology *2 SWS (0.66)*
SS2018	Doctoral Students Seminar: Radiation Physics Applications in Radiation Oncology *2 SWS (0.75)*
WS2018	Doctoral Students Seminar: Ion Beam Therapy *2 SWS (0.5)*
SS2020	Journal Club: Advanced Radiotherapy Techniques *2 SWS (0.9)*
WS2020	Doctoral Students Seminar: Radiation Physics Applications in Radiation Oncology *2 SWS (0.6)*
SS2022	Doctoral Students Seminar: Ion Beam Therapy *1 SWS (0.8)*
SS2023	Doctoral Students Seminar: Ion Beam Therapy *1 SWS (0.8)*
SS2024	Basic Seminar: Ion beam therapy physics *1 SWS (1)*
WS2024	Basic Seminar: Ion beam therapy *1 SWS (1)*
SS2025	TS: Ion beam therapy *1 SWS (1)*
WS2025	TS: Radiation Physics Applications in Radiation Oncology *2 SWS (1)*
WS2025	TS: Ion beam therapy *1 SWS (1)*
SS2026	TS: Ion beam therapy *1 SWS (1)*
	Total own SWS in MUW PhD Programme *13*

MUW Medical Degree Programme

SS2016–2026	BL 18 – Haut und Sinnesorgane *(0.8 SWS per semester; total: 8.8 SWS)*
WS2016–2026	BL 3 – Vom Molekül zur Zelle *(1.07 SWS per semester; total: 11.77 SWS)*
SS2024	SSM3-Projektstudie *4 SWS (0.25)*
	Total own SWS in MUW Medical Degree Programme *20.8*

Technical University of Vienna

SS2022-2026	Einführung in die medizinphysikalischen Grundlagen der Ionentherapie *(0.68 SWS per semester; total: 3.4 SWS)*
WS2023-2026	Experimente am MedAustron Teilchenbeschleuniger - Angewandte Teilchenphysik und medizinische Physik *(0.68 SWS per semester; total: 2.04 SWS)*
	Number of Lectures given at TU Vienna *8*

University of Applied Sciences Wiener Neustadt

WS2021-24	Medizinische Bildverarbeitung
WS2021-24	Computer aided diagnostic and E-Health
	Number of Lectures given at FH Wiener Neustadt *8*