

Wolfgang Lechner

Curriculum Vitae

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Professional Experience

- since 10/2014 **Post Doc Medical Physicist**
Department of Radiation Oncology, Medical University of Vienna.
- 4/2017-11/2017 **Dosimetry Expert**
International Atomic Energy Agency, Division of Human Health, Dosimetry and Medical Radiation Physics, Dosimetry Laboratory.
- 10/2013-9/2014 **Medical Physicist in training**
Department of Radiation Oncology, General Hospital of Vienna (AKH Wien).
- 01/2012-10/2013 **Scientific assistant**
Department of Radiation Oncology & Christian Doppler Laboratory for Medical Radiation Research for Radiation Oncology, Medical University of Vienna.
- 02/2009-09/2009 **Electrical engineer / design draftsman**
IB-Süd Planungs GesmbH, Guntramsdorf, Austria.
- 03/2004-09/2005 **Electrical engineer / design draftsman**
Dürr Austria GmbH, Salzburg, Austria.
- 06/2003-03/2004 **Field engineer**
ASMAT Handels GmbH, Salzburg, Austria.
- 04/2003-06/2003 **Call center agent**
Alldirekt Telemarketing GmbH, Salzburg, Austria.
- 10/2002-03/2003 **Field engineer**
Axess AG, Salzburg, Austria.
- 01/2002-09/2002 **Military service**
Austrian Armed Forces, Salzburg, Austria.
- 08/2001-12/2001 **Operator**
Sony DADC Thalgau, Salzburg, Austria.

Education

- 07/2014 **PhD program Medical Physics (PhD)**
Department of Radiotherapy & Christian Doppler Laboratory for Medical Radiation Research for Radiation Oncology, Medical University of Vienna.
PhD thesis: *Dosimetric evaluation of flattening filter free photon beams*
Supervisor: Univ. Prof. DI Dr. Dietmar Georg
- 12/2011 **Master of Science in Biomedical Engineering (Dipl.-Ing.)**
Vienna University of Technology.
Master thesis: *Intensity modulated radiotherapy using flattening filter free photon beams*
Supervisor: Univ. Prof. DI Dr. Dietmar Georg

- 09/2009 **Bachelor of Science in Electrical Engineering and Information Technology (BSc)**
Vienna University of Technology.
- 03/2005 **Vocational matriculation examination (Berufsreifeprüfung)**
BFI / HAK, Salzburg, Austria.
- 06/2001 **Graduation from the technical school for electrical engineering**
Fachschule für Elektrotechnik, HTL, Salzburg, Austria.

Languages

German	Native Speaker
English	Fluent, contractual level
Spanish	Basic

Awards

- 2022 ÖGRO Award for physics

Publications

Articles in peer-reviewed journals

Articles as First- or Last Author in Top Journals:

Wolfgang Lechner, Rodolfo Alfonso, Mehenna Arib, M. Saiful Huq, Anas Ismail, Rajesh Kinhikar, José M. Lárraga-Gutiérrez, Karthick Raj Mani, Nkosingiphile Maphumulo, Otto A Sauer, Shaima Shoeir, Sivalee Suriyapee, Karen Christaki, *A multi-institutional evaluation of small field output factor determination following the recommendations of IAEA/AAPM TRS-483*, Medical Physics, 2022, Aug;49(8):5537-5550

Sinan Irmak, Lukas Zimmermann, Dietmar Georg, **Wolfgang Lechner**, *Cone beam CT based validation of neural network generated synthetic CTs for radiotherapy in the head region*, Medical Physics, 2021, Aug;48(8):4560-4571

Wolfgang Lechner, Dietmar Georg, Hugo Palmans, *An analytical formalism for the assessment of dose uncertainties due to positioning uncertainties*, Medical Physics, 2020 Mar;47(3):1357-1363

Wolfgang Lechner, Peter Kuess, Dietmar Georg, Hugo Palmans, *Equivalent (uniform) square field sizes of flattening filter free photon beams*, Physics in Medicine and Biology, 2017, 62(19):7694-7713

Peter Kuess, Dietmar Georg, Hugo Palmans, **Wolfgang Lechner**, *Technical Note: On the impact of the incident electron beam energy on the primary dose component of flattening filter free photon beams*, Medical Physics, 2016, 43(8):4507

Wolfgang Lechner, Hugo Palmans, Lukas Sölkner, Paulina Grochowska, Dietmar Georg, *Detector comparison for small field output factor measurements in flattening filter free photon beams*, Radiotherapy and Oncology, 2013,109:356-360

Wolfgang Lechner, Gabriele Kragl, Dietmar Georg, *Evaluation of treatment plan quality of IMRT and VMAT with and without flattening filter using Pareto optimal fronts*, Radiotherapy and Oncology, 2013, 109:437-441

Articles as First- or Last Author in Standard Journals:

Wolfgang Lechner, Knäusl Barbara, Brunner Jacob, Georg Dietmar, Kuess Peter, *A phantom for 2D dose measurements in the vicinity of metal implants for photon and proton beams*, Frontiers in Physics,

Aug 2024;12

Wolfgang Lechner, Dávid Kanalas, Sarah Haupt, Lukas Zimmermann, Dietmar Georg, *Evaluation of a novel CBCT conversion method implemented in a treatment planning system*, Radiation Oncology, 2023 Nov 16;18(1)

Akbar Azzi, Gerd Heilemann, Dietmar Georg, Supriyanto Ardjo Pawiro, Terry Mart, **Wolfgang Lechner**, *Impact of log file source and data frequency on accuracy of log file-based patient specific quality assurance*, Zeitschrift für Medizinische Physik, 2023 Jun 24:S0939-3889(23)00075-2

Sinan Irmak, Dietmar Georg, **Wolfgang Lechner**, *Comparison of CBCT conversion methods for dose calculation in the head and neck region*, Zeitschrift für Medizinische Physik, 2020 Nov;30(4):289-299

Wolfgang Lechner, Alexander Primeßnig, Lena Nenoff, Paulina Wesolowska, Joanna Izewska and Dietmar Georg, *The influence of errors in small field dosimetry on the dosimetric accuracy of treatment plans*, Acta Oncologica, 2020 May;59(5):511-517

Lechner W et al., *A multinational audit of small field output factors calculated by treatment planning systems used in radiotherapy*, Physics & Imaging in Radiation Oncology, 2018, 5:58-63

Co-Authorships:

Lena Nenoff, Florian Amstutz, Martina Murr, Ben Archibald-Heeren, Marco Fusella, Mohammad Hussein, **Wolfgang Lechner**, Ye Zhang, Gregory C Sharp, Eliana Vasquez Osorio, *Review and recommendations on deformable image registration uncertainties for radiotherapy applications*, Physics in Medicine and Biology, 2023 Dec 13;68(24):24TR01

Gerd Heilemann, Martin Buschmann, **Wolfgang Lechner**, Vincent Dick, Franziska Eckert, Martin Heilemann, Harald Herrmann, Matthias Moll, Johannes Knoth, Stefan Konrad, Inga-Malin Simek, Christopher Thiele, Alexandru Zaharie, Dietmar Georg, Joachim Widder, Petra Trnkova, *Clinical Implementation and Evaluation of Auto-Segmentation Tools for Multi-Site Contouring in Radiotherapy*, Physics & Imaging in Radiation Oncology 2023 Nov 17:28:100515

Jordi Saez, Raquel Bar-Deroma, Evelien Bogaert, Romain Cayez, Tom Chow, Catharine H Clark, Marco Esposito, Vladimir Feygelman, Angelo F Monti, Julia Garcia-Miguel, Eduard Gershkevitch, Jo Goossens, Carmen Herrero, Mohammad Hussein, Catherine Khamphan, Roel G J Kierkels, **Wolfgang Lechner**, Matthieu Lemire, Alexander Nevelsky, Daniel Nguyen, Lucia Paganini, Marlies Pasler, José Fernando Pérez Azorín, Luis Isaac Ramos Garcia, Serenella Russo, John Shakeshaft, Laure Vieilleveigne, Victor Hernandez, *Universal evaluation of MLC models in treatment planning systems based on a common set of dynamic tests*, Radiotherapy and Oncology, 2023 Sep;186:109775

Gerd Heilemann, Lukas Zimmermann, Raphael Schotola, **Wolfgang Lechner**, Marco Peer, Joachim Widder, Gregor Goldner, Dietmar Georg, Peter Kuess, *Generating deliverable DICOM RT treatment plans for prostate VMAT by predicting MLC motion sequences with an encoder-decoder network*, Medical Physics, 2023 Aug;50(8):5088-5094

Resch AF, Cabal FP, Regodic M, **Lechner W**, Heilemann G, Kuess P, Georg D, Palmans H, *Accelerating and improving radiochromic film calibration by utilizing the dose ratio in photon and proton beams*, Medical Physics, 2022, Sep;49(9):6150-6160

Kriwanek F, Ulbrich L, **Lechner W**, Lütgendorf-Caucig C, Konrad S, Waldstein C, Herrmann H, Georg D, Widder J, Traub-Weidinger T, Rausch I, *Impact of SSTR PET on Inter-Observer Variability of Target Delineation of Meningioma and the Possibility of Using Threshold-Based Segmentations in Radiation*

Laggner M, Gugerell A, Copic Dragan, Jeitler M, Springer M, Peterbauer A, Kremslehner C, Filzwieser-Narzt M, Gruber F, Madlener S, Erb M, Widder J, **Lechner W**, Georg D, Mildner M, Ankersmit HJ, *Comparing the efficacy of γ - and electron-irradiation of PBMCs to promote secretion of paracrine, regenerative factors*, *Molecular Therapy - Methods & Clinical Development*, 2021, Feb 24;21:14-27

Kazantsev P, **Lechner W**, Gershkevitsh E, Clark CH, Venencia D, Van Dyk J, Wesolowska P, Hernandez V, Jornet N, Tomsej M, Bokulic T & Izewska J, *IAEA methodology for on-site end-to-end IMRT/VMAT audits: an international pilot study*, *Acta Oncologica*, 2019, DOI:10.1080/0284186X.2019.1685128

Khan M, Heilemann G, **Lechner W**, Georg D, Berg A, *Basic Properties of a New Polymer Gel for 3D-Dosimetry at High Dose-Rates Typical for FFF Irradiation Based on Dithiothreitol and Methacrylic Acid (MAGADIT): Sensitivity, Range, Reproducibility, Accuracy, Dose Rate Effect and Impact of Oxygen Scavenger*, *Polymers* 2019;11(10), 1717, DOI:10.3390/polym11101717

Wesolowska P, Georg D, **Lechner W**, Kazantsev P, Bokulic T, Tedgren AC, Adolfsson E, Campos AM, Alves VGL, Suming L, Hao W, Ekendahl D, Koniarova I, Bulski W, Chelminski K, Samper JLA, Vinatha SP, Rakshit S, Siri S, Tomsejm M, Tenhunen M, Povall J, Kry SF, Followill DS, Thwaites DI, Izewska J., *Testing the methodology for a dosimetric end-to-end audit of IMRT/VMAT: results of IAEA multicentre and national studies.*, *Acta Oncologica*, 2019, 19:1-9

Izewska J, **Lechner W**, Wesolowska P, *Global availability of dosimetry audits: The IAEA dosimetry audit networks database*, *Physics and Imaging in Radiation Oncology*, 2018, 5:1-4

Haymerle G, Enzenhofer E, **Lechner W**, Stock M, Schrater-Sehn A, Vyskocil E, Bachtiry B, Selzer E, Erovic BM *The effect of aduvant radiotherapy on radial forearm free flap volume after soft palate reconstruction in 13 patients*, *Clinical Otolaryngology*, 2018, 43(2):742-745 (**IF 2.377**) 0 citation

Khachonkham S, Dreindl R, Heilemann G, **Lechner W**, Fuchs H, Georg D, Kuess P, *Characteristic of EBT-XD and EBT3 radiochromic film dosimetry for photon and proton beams*, *Physics in Medicine and Biology*, 2018, 63(6):065007

Peter Kuess, Till Böhlen, **Wolfgang Lechner**, Alessio Elia, Dietmar Georg, Hugo Palmans, *Lateral response heterogeneity of Bragg peak ionization chambers for narrow-beam photon and proton dosimetry*, *Physics in Medicine and Biology*, 21;62(24):9189-9206

Natalia Kostiukhina, Dietmar Georg, Sofia Rollet, Peter Kuess, Andrej Sipaj, Piotr Andrzejewski, Hugo Furtado, Ivo Rausch, **Wolfgang Lechner**, Elisabeth Steiner, Hunor Kertész, Barbara Knäusl, *Advanced Radiation DOSimetry phantom (ARDOS): a versatile breathing phantom for 4D radiation therapy and medical imaging*, *Physics in Medicine and Biology*, 2017, 62(19):8136-8153

Annemieke De Puyseleyr, **Wolfgang Lechner**, Wilfried De Neve, Dietmar Georg, Carlos De Wagter, *Absorbed dose measurements in the build-up region of flattened versus unflattened megavoltage photon beams*, *Zeitschrift für Medizinische Physik*, 2016, 26(2):177-83

Godfrey Azangwe, Paulina Grochowska, Dietmar Georg, Joanna Izewska, Johannes Hopfgartner, **Wolfgang Lechner**, Claus E. Andersen, Anders R. Beierholm, Jakob Helt-Hansen, Hideyuki Mizuno, Akifumi Fukumura, Kaori Yajima, Clare Gouldstone, Peter Sharpe, Ahmed Meghziene, Hugo Palmans, *Detector to detector corrections: a comprehensive experimental study of detector specific correction factors for beam output measurements for small radiotherapy beams*, *Medical Physics*, 2014, 41(7):072103

Invited lectures

Lechner W, *Effective expression of uncertainties - The hows, whys and don'ts*, Teaching Lecture, ESTRO 2023, Vienna, Austria, Mai 2022

Lechner W, *Erzeugung ionisierender Strahlung in der Klinik: Linearbeschleuniger*, Winterschule Pichl, Pichl, Austria, Juni 2022

Lechner W, *Adaptive Konzepte in der Strahlentherapie*, Winterschule Pichl, Pichl, Austria, Juni 2022

Lechner W, *MR guided radiation oncology*, dESO, Salzburg, Austria, September 2018

Lechner W, *Log-file based dose assessment - do we still need to measure*, Pre-meeting course ESTRO 35, Turin, Italy, April 2016

Lechner W, *Which dosimetric uncertainties in small fields are clinically acceptable for IMRT/VMAT?*, Symposium, ESTRO 35, Turin, Italy, April 2016

Lechner W, *Künstliche Intelligenz in der Praxis der Radioonkologie*, MTDG Fortbildung: Künstliche Intelligenz in der Radioonkologie / Automatisierungen, Vienna, Austria, September 2023

Lechner W, *Zielgebiets- und Risikoorgandefinition: Grundlagen und neue Ansätze*, MTDG Fortbildung: Physikalisch-Technische Grundlagen in der Strahlentherapie - Wissensaktualisierung, Vienna, Austria, Mai 2023

Lechner W, *Zielgebiets- und Risikoorgandefinition: Grundlagen und neue Ansätze*, MTDG Fortbildung: Physikalisch-Technische Grundlagen in der Strahlentherapie - Wissensaktualisierung, Vienna, Austria, September 2021

Oral conference contributions

Lechner W, Haupt S, Kanalas D, Zimmermann L, Georg D, *Evaluation of a novel CBCT conversion method*, ESTRO 2022, Copenhagen, Denmark, May 2022

Lechner W, Georg D, *Small field dosimetry in stereotactic radiotherapy*, oral presentation, ÖGRO Jahrestagung, Salzburg, Austria, September 2018

Lechner W, Georg D, *Small field dosimetry in IMRT and VMAT*, oral presentation, ÖGRO Jahrestagung, Salzburg, Austria, September 2018

Lechner W, Georg D, Palmans H, *An analytical formalism for the assessment of dosimetric uncertainties due to positioning uncertainties*, oral presentation, ÖGMP Jahrestagung, Vienna, Austria, June 2018

Lechner W, Georg D, Palmans H, *An analytical formalism for the assessment of dosimetric uncertainties due to positioning uncertainties*, oral presentation, ESTRO 37, Barcelona, Spain, April 2018

Lechner W, Kuess P, Georg D, Palmans H, *Equivalent uniform square field sizes of flattening filter free photon beams*, oral presentation, ESTRO 36, Vienna, Austria, May 2017

Lechner W, Bozaky E, Georg D, Dörr W, *A phantom suitable for cell survival investigations using flattened and unflattened photon beams*, oral poster presentation, 3rd ESTRO Forum, Barcelona, Spain, April 2015

Lechner W, Sölkner L, Grochowska P, Georg D, *Detector comparison for small field output factor measurements with flattening filter free photon beams*, oral presentation, 2nd ESTRO Forum, Geneva, Switzerland, April 2013

Lechner W, Kragl G, Georg D, *Evaluation of IMRT and VMAT treatment plan quality delivered with and without flattening filter using Pareto optimal fronts*, short oral presentation, AAPM 54th annual meeting, Charlotte, NC, USA, July 2012

Lechner W, Kragl G, Georg D, *Treatment plan quality of IMRT and VMAT with and without flattening filter - Comparison using Pareto optimal fronts*, Poster discussion, ESTRO 31, Barcelona, Spain, Mai 2012

Lechner W, Kragl G, Magalhães E, Georg D, *Evaluation of IMRT and VMAT treatment plan quality delivered with and without flattening filter using Pareto optimal fronts*, oral presentation, 3-Ländertagung 2011, Vienna, Austria, September 2011

Poster

Lechner W, Fuch H, Georg D, *Characterization of a phantom for 2D dose measurements near metal implants in photon and proton beams*, poster, 5th European Congress of Medical Physics 2024, Munich, Germany, September 2024

Lechner W, Fuch H, Georg D, *Commissioning of the new Monte Carlo algorithm SciMoCa for a VersaHD LINAC*, poster, ESTRO 36, Vienna, Austria, May 2017

Georg D, Azangwe G, Followill D, Grochowska P, Kry S, Lechner W, Povall J, Tenhunen M, Twaites DI, Tomsej M, Izewska J, *Development of methodology for remote IMRT audits and related tests*, 3rd ESTRO Forum, Barcelona, Spain, April 2015

De Puysseloyr A, Lechner W, Georg D De Wagter C, *Dose calculation accuracy in the build-up region of flattening filter-free photon beams*, ESTRO 33, Vienna, Austria, April 2014

Mizuno H, Grochowska P, Azangwe G, Deneva B, Lechner W, Izewska J *Small field dosimetry using three solid state dosimeters for advanced dose audit in radiotherapy*, ESTRO 33, Vienna, Austria, April 2014

Lechner W, Kragl G, Georg D, *Evaluation of IMRT and VMAT Treatment Plan Quality Delivered with and Without Flattening Filter Using Pareto Optimal Fronts*, AAPM General meeting, Charlotte, NC, USA, July 2012

Lechner W, König F, Poljanc K, Aiginger J, Leitha T, *ImageJ-Plugin zur Berechnung der örtlichen Auflösung in rekonstruierter SPECT Schicht nach NEMA NU 1:2007*, 3-Ländertagung 2011, Vienna, Austria, September 2011