

CURRICULUM VITAE

Wolfgang Lechner

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PERSONAL DATA

Date of Birth February 16th, 1983

Place of Birth Salzburg

Citizenship Austria

Marital Status Married

Children One

PROFESSIONAL EXPERIENCE

since 10/2014 **Post Doc (Medical Physics Expert since 01/2019)**, Department of Radiation Oncology, Medical University of Vienna

4/2017-11/2017 **Research stay**, 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)

01/2012-10/1013 **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

01/2019 **Medical Physics Expert**, Austrian Society of Medical Physics (ÖGMP)

07/2015 **Medical Physicist**, Austrian Society of Medical Physics (ÖGMP)

07/2014 **PhD program**, Department of Radiotherapy & Christian Doppler Laboratory for Medical Radiation Research for Radiation Oncology, Medical University of Vienna
Supervisor: Assoc. Prof. DI Dr. Dietmar Georg
PhD thesis: *Dosimetric evaluation of flattening filter free photon beams*

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*

09/2009 **Bachelor of Science in Electrical Engineering and Information Technology** (BSc), Vienna University of Technology

03/2005 **Vocational matriculation examination (Berufsreifepfung)**, BFI / HAK, Salzburg, Austria

06/2001 **Graduation from the technical school for electrical engineering (Fachschule für Elektrotechnik)**, HTL, Salzburg, Austria

EXTRACURRICULAR EDUCATION

Medical University of Vienna PE Seminars

10/2018 PE - Leiten, Motivieren, Delegieren - 24h

2/2018	PE - §26 und §27-Projekte - Teil 1: Bedeutung, rechtliche und personelle Rahmenbedingungen von Drittmittelprojekten - 6h
2/2018	PE - §26 und §27-Projekte - Teil 2: Von der Projektidee zur Projektabwicklung: Finanzen, Ethikkommission und Patente - 5h
10/2016	PE - Projektmanagement - 24h
10/2016	MLW - Diplomarbeiten an der MedUni Wien professionell betreuen - 8h
5/2016	MLW - eLearning mit MOODLE - 6h
3/2016	Mentee in the ScientMedNet-Mentoring Program of the MedUni Wien - 14h

External Trainings

06/2015	Spezielle Ausbildung für Strahlenschutzbeauftragte: Human- und Zahnmedizin - Strahlentherapie , Seibersdorf, Austria
05/2015	4D radiotherapy - from 4D-imaging to 4D-dose delivery and verification , Teaching Course of the European Society for Therapeutic Radiology and Oncology (ESTRO); Barcelona, Spain.
02/2015	Ausbildung zum Strahlenschutzbeauftragten - Grundkurs , Verband für Medizinischen Strahlenschutz in Österreich, Vienna, Austria
05/2012	What a physicist should consider before going into a proton therapy project , Teaching Course of the European Society for Therapeutic Radiology and Oncology (ESTRO); Barcelona, Spain.

RESEARCH INTEREST

- Medical Physics in Radiation Oncology
- Theoretical and applied dosimetry
- Small field dosimetry
- Flattening filter free photon beams
- Machine learning
- Dose calculation
- Non-linear optimization

- Treatment planning
 - Quality assurance
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CLINICAL EXPERIENCE

More than 7 years experience in medical physics with focus on radiation oncology including:

- Acceptance testing, commissioning and quality assurance of linear accelerators, imaging and positioning systems
 - Implementation of new techniques and technologies into clinical routine
 - Medical dosimetry
 - Treatment planning using conventional and high precision radiotherapy techniques
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SKILLS

Languages	English (fluently spoken and written)
Computer	Linux, MacOS, Windows C/C++, Java, Matlab/Octave, Mathematica, Python various medical treatment planning systems Microsoft Office, Open Office, Latex

RESEARCH GRANTS AND THIRD PARTY FUNDS

2015	Third party fund - BrainLab AG - <i>Validierung eines VersaHD 6MV beam models in iPlan</i> - 18,200.00 €
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PUBLICATIONS

Articles in peer-reviewed journals

First- and Last Authorship in Top Journals:

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 (**IF 4.857**) 48 citations

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 (**IF 4.857**) 24 citations

First- and Last Authorship in standard Journals:

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 (**Journal established in 2017 therefore no IF yet**)

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 (**IF 2.742**) 1 citation

Peter Kuess, Dietmar Georg, Hugo Palmans, **Wolfgang Lechner**, *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 (**IF 2.635**) 1 citation

Co-Authorships:

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 (**Journal established in 2017 therefore no IF yet**)

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 2.696**)

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 **(IF 2.742)**

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*, inpress, Physics in Medicine and Biology **(IF 2.742)** 2 citations

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 **(IF 2.742)** 2 citations

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 Meghzifene, 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 **(IF 2.635)** 67 citations

Annemieke De Puyseleer, **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 **(IF 2.963)** 2 citations

Publications submitted in 2019:

Lechner W, Primeßnig A, Nenoff L, Wesolowska P, Izewska J, Georg D, *The influence of errors in small field dosimetry on the dosimetric accuracy of treatment plans* submitted to Acta Oncologica

Invited lectures

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

Oral conference contributions

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, *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 Puyssseleir 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, 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

TEACHING

Teaching at the Medical University of Vienna

Seminars

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| 2018 | WS 2018 Doctoral Students Seminar: Radiation Physics Applications in Radiation Oncology - Medical University of Vienna - 2 SWS (0.75) |
| 2018 | SS 2018 Journal Club: Advanced Radiotherapy Techniques - Physical Fundamentals of Radio Oncology - Medical University of Vienna - 2 SWS (0.66) |
| 2018 | SS 2018 VO BL 6 - Der Mensch in Umwelt, Familie und Gesellschaft - 3,3 SWS (0.13) |
| 2018 | SS 2018 SK BL 6 - Der Mensch in Umwelt, Familie und Gesellschaft - 0,8 SWS (1) |
| 2018 | SS 2018 Journal Club: Advanced Radiotherapy Techniques - Physical Fundamentals of Radio Oncology - Medical University of Vienna - 2 SWS (0.66) |
| 2016 | Journal Club: Advanced Radiotherapy Techniques - Physical Fundamentals of Radio Oncology - Medical University of Vienna - 2 SWS (0.66) |

2015 Basic Seminar: Medical Physics VIII - Physical Fundamentals of Radio Oncology - Medical University of Vienna - 2 SWS (1)

Postgraduate course Medical Physics

2016 Practical training in medical radiation physics II - Medical University of Vienna - Universitätslehrgang Medizinische Physik - 1 SWS (1)

2015 Practical training in diagnostic x-ray imaging I - Medical University of Vienna - Universitätslehrgang Medizinische Physik - 1 SWS (0.167)

2013 Practical training in medical radiation physics II - Medical University of Vienna - Universitätslehrgang Medizinische Physik - 1 SWS (1)

Supervised Students

Completed MSc Theses

2015 Andreas Moser (FH Wiener Neustadt): "Quality assurance of medical linear accelerators using log file analysis"

Completed MSc Theses (co-supervision with Univ.-Prof. Dietmar Georg)

2019 Judith Schinerl (TU Vienna): "Assessment of Treatment Plan Complexity using Neural Networks"

2017 Andreas Altendorfer (TU Vienna): "Utilising Elekta LINAC and MLC controller log files for phantom-less-patient specific IMRT QA"

2016 Marie-Therese Bsteh (TU Vienna): "Evaluation of treatment techniques for flattening filter free photon beams"

2016 Primeßnig Alexander (TU Vienna): "The influence of leaf sequencing and errors in small field output factor measurements on the dosimetric quality of treatment plans"

2016 Mirescu Gloria (TU Vienna): "Commissioning of the VERSA HD linear accelerator for the RayStation treatment planning system with focus on fallback planning"

2015 Lena Nenoff (TU Dresden): "The influence of errors in small field dosimetry on dosimetric accuracy of treatment plans"

Completed BSc Theses (co-supervision with Univ.-Prof. Dietmar Georg)

- 2015 Michael Gruber (TU Vienna): "Commissioning of Versa HD beam models in two different treatment planning systems"
- 2014 Lorenz Pflieger (TU Vienna): "Characterization of a microDiamond detector in flattening filter free photon beams"
- 2014 Ponweiser Michaela (TU Vienna): "VMAT approach for stereotactic treatment of uveal melanoma: A planning study"
- 2014 Elisabeth Salomon (TU Vienna): "Ionization chamber corrections for flattening filter free beams"
- 2013 Lukas Sölkner (TU Vienna): "Vergleich von Detektoren für Messung von Output-Faktoren kleiner Felder in Flattening-Filter-Free Photonenstrahlen"

Teaching at the University of Applied Sciences Wiener Neustadt

Seminars

- 2013 - 2018 Practical training in ion radiotherapy - MedTech - 3 ECTS

Teaching courses

IAEA

- 2018 Training course in IMRT quality assurance: ROM6018, Bucharest
- 2017 Regional training course in IMRT quality audits: RAS6072, Singapore