

# Curriculum Vitae

Univ.-Prof. Dr. Friedrich Aumayr  
TU Wien, Vienna, Austria



## Present position

Full Professor of Ion - and Plasma Physics  
Director of Institute of Applied Physics at TU Wien  
Head of the Atomic and Plasma Physics Research Group  
TU Wien – Vienna University of Technology, Institute of Applied Physics  
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Director of the Austrian Fusion Research Program at the Austrian Academy of Sciences (ÖAW)  
Head of Research Unit of Fusion@ÖAW URL: <http://www.oeaw.ac.at/fusion/>

## Research interests

Ion Physics: Physics of highly charged ions, atomic collisions (ions–atom/molecule, ion-surface), “hollow” atom formation and decay, ions as tools to modify and investigate surfaces  
Plasma Physics: Fusion plasmas, plasma-wall-interaction, plasma diagnostics and modelling, atomic data for fusion, ECR ion sources, X-ray lasers  
Surface Physics: Basic ion - surface interaction processes (electron emission, sputtering, nano-structure formation), capillary guiding of ion beams, AFM/STM studies of ion-induced surface nanostructures, 2D-materials (graphene, hBN, MoS<sub>2</sub>, vdW-heterostructures)  
Other Interests: Popularization of science

## Personal information

born August 16, 1959 in Linz, Austria, Austrian Citizenship, married, 3 children

## Academic degrees

1991 Univ. Dozent - Habilitation in Experimental Physics, TU Wien, Austria  
1985 Dr.techn. (PhD) in Technical Sciences from TU Wien, Austria (advisor: HP. Winter)  
1982 Mag.rer.nat. (MSc.) in Mathematics & Physics from J. Kepler University Linz, Austria  
1982 Dipl.Ing. (MSc.) in Technical Physics from J. Kepler University Linz, Austria (advisor: P. Bauer)

## Scientific publications & research impact

More than **310** publications in international peer-reviewed journals (among them **23 Phys. Rev. Lett.**, **1 Nature Comm.**, **1 ACS Nano**, **1 J. Phys. Chem. Lett.**, **1 Astrophys. J.**, **2 Appl. Phys. Lett.**, etc.).  
More than **75** invited talks at international conferences.

Scholar google [profile](#) (21.08.2022): **h-index: 55**, 10398 citations, i10-index: **220**  
ISI “Web of Knowledge” (21.08.2022): **h-index: 45**, 7030 citations (5210 without self-citations),  
Scopus Author ID [7005607254](#): **h-index: 45**, 7115 citations  
Publon/ResearcherID: A-3920-2009 <https://www.webofscience.com/wos/author/record/388957>  
ORCID: 0000-0002-9788-0934 <http://orcid.org/0000-0002-9788-0934>

## Competitively acquired research funds and grants

Grants obtained as principal investigator since 1989	
13 Grants from FWF (Austrian Science Foundation)	1 750 k€
7 Grants from EU and EURATOM	3 463 k€
27 Grants from ÖAW (Austrian Academy of Sciences)	962 k€
15 Grants from other funding agencies	1 248 k€
<b>in total</b>	<b>7.42 Million €</b>

## Professional career

2016 -	Director (Institutsvorstand) of Institute of Applied Physics (IAP) TU Wien
2015 -	Full Professor of Ion- and Plasma Physics at TU Wien
2013 -	Director (Head of Research Unit) of the Austrian Nuclear Fusion Program at ÖAW
2008 -	Berufstitel: Univ.Prof. / honorary Full Professor
2006 - 2015	Deputy Director (stellv. Institutsvorstand) of Institute of Applied Physics (IAP) TU Wien
1997 - 2014	Extraordinary Professor (ao. Univ.Prof.) of Experimental Physics, TU Wien
1992 - 1997	Associate Professor (with tenure) Inst. f. Allgemeine Physik, TU Wien
1990 -	Research group leader "Atomic and Plasma Physics", IAP, TU Wien
1989 - 1990	Postdoctoral Researcher, Princeton University, Princeton/NJ USA, Plasma Physics Laboratory and MAE-Department, X-Ray Laser Group, advisor: Szymon Suckewer
1986 - 1991	Univ. Assistant, Inst. f. Allgemeine Physik, TU Wien, Vienna, Austria
1986	Military Service
1982 - 1985	Research Assistant, Austrian Academy of Sciences (ÖAW)

## Research visits at foreign laboratories

2008 (May):	Max Planck Institut f. Kernphysik, Heidelberg, Germany
2008 (April):	ARIBE Accelerator Facility GANIL-CIMAP, Caen, France
2005 (May):	Max Planck Institut f. Kernphysik, Heidelberg, Germany
2001 (April):	Humboldt University Berlin, Germany
1993 (Feb. – Mar.):	Lawrence Livermore Nat'l Lab., CA, EBIT Group
1992 (April):	Lawrence Livermore Nat'l Laboratory, CA, EBIT Group
1992 (Jan. – Mar.):	Heavy Ion Accelerator Facility GSI-Darmstadt/Germany
1990 (July – Aug.):	Princeton Plasma Physics Lab. PPPL, X-Ray Laser Group, Princeton/NJ USA,
1989 (Jan. – Dec.):	Princeton University, Princeton/NJ USA, MAE-Department, X-Ray Laser Group
1985 (Jan.):	Ruhruniversität Bochum/Germany
1983 – 1988:	various research periods of 2 – 4 weeks at TEXTOR Tokamak, FZ-Jülich/Germany

## Fellowships, honors and awards

2020	Best Teacher Award 2020 - TU Wien, Faculty of Physics
2019	Best Lecture Award 2019 - TU Wien, Faculty of Physics
2018	Best Lecture Award 2018 - TU Wien, Faculty of Physics
2017	Best Lecture Award 2017 - TU Wien, Faculty of Physics
2008	Berufstitel "Universitätsprofessor"
2001	Technikpreis der Wiener Wirtschaft
2000	Recipient of the "Innovative Projects" grant of TU Wien
1996	Röntgen-Preis (Roentgen-Award, Univ. Giessen/Germany)
1989	Erwin Schrödinger Fellowship (Austrian Science Fund FWF)
1985	Promotio sub auspiciis praesidentis rei publicae (PhD thesis awarded with honors sub auspiciis praesidentis for excellence)



## Service to the international scientific community

### Present memberships and official functions

since 2021	Member of the Supervisory Board (Aufsichtsrat) of EBG MedAustron GmbH
since 2020	Member of the Governing Board (Verwaltungsrat) of the European Joint Undertaking for ITER and the Development of Fusion Energy ("Fusion for Energy" - F4E)
since 2018	Chair of the Board of Trustees (Stiftungsrat) of the Friedrich Schiedel Foundation for Energy Technology
since 2018	Member of the External Scientific Advisory Board of RADIATE (EU-H2020 Research Infrastructure Network "Research And Development with Ion Beams – Advancing Technology in Europe", grant agreement 824096)
since 2014	Head of Research Unit of Fusion@ÖAW (Director of the Austrian Nuclear Fusion Research Program at the Austria Academy of Sciences) FP8+FP9 Fusion Program
since 2014	Representative of ÖAW/Austria in the General Assembly of the EUROfusion-Consortium (Co-Fund Action within Horizon Europe, grant agreement 101052200 & Co-Fund Action within Horizon 2020, grant agreement 633053)
since 2014	Member of the ÖAW Commission for Participation in Large-Scale Research Facilities
since 2011	Member of the Faculty Council of the Faculty of Physics at TU Wien
since 2010	Individual Member of the European Physical Society (EPS)
since 2009	Member of the Chemical Physical Society (CPG)
since 2008	Member of Rotary Club St. Pölten (District 1910)
since 1997	Member of the Commission for the Coordination of Fusion Research in Austria (KKKÖ) at the Austrian Academy of Sciences
since 1983	Member of the Austrian Physical Society (ÖPG)

### Past Memberships and official functions

2014 - 2021	Member of the Scientific Advisory Board of the Helmholtz Zentrum Dresden Rossendorf (HZDR), Germany
2015	Guest Editor of the <i>Topical issue: Elementary processes with atoms and molecules in isolated and aggregated states</i> published in The European Physical Journal D
2014 - 2018	Member of the Foundation Committee of the Friedrich Schiedel Foundation for Energy Technology
2014 - 2015	President & past president of the Chemical-Physical Society (CPG) Vienna, Austria
2013	Head of Research Unit of Association EURATOM-ÖAW (FP7 Fusion program)
2013 - 2016	Vice-Chair of the Atomic, Molecular & Optical Physics Division (AMOPD) of the European Physical Society EPS
2010 - 2013	Chair of the Atomic, Molecular & Optical Physics Division (AMOPD) of the European Physical Society EPS
2009 - 2011	Board-Member of the Chemical-Physical Society (CPG) Vienna, Austria
2008 - 2016	Member of the Editorial Board for the SCI Journal "Nuclear Instruments and Methods in Physics Research Section B - Beam Interactions with Materials and Atoms" (Elsevier Science BV, Amsterdam, Netherlands, ISSN: 0168-583X)
2007 - 2016	Member of the Program Advisory Committee for Interdisciplinary Research (CERIG) at GANIL in Caen/France
2006 - 2012	Deputy - Head of Research Unit of the Association EURATOM-ÖAW
2007 - 2010	Member of the Science and Technology Advisory Committee STAC of EFDA (European Fusion Development Agreement)
2000 - 2002	Austrian representative in the EU - Fusion Physics Committee (FPC)

1996 - 1997 Chair of the Atomic -, Molecular - and Plasma Physics Division (FAMP) of the Austrian Physical Society (ÖPG)

## Memberships in committees of international conferences

since 2019 Executive Officer and Member of the Executive Committee of the International Conference on the Physics of Electronic, Photonic and Atomic Collisions (ICPEAC)

since 2019 Member of the International Advisory Committee of the Symposium on Electron, Photon, and Ion Collisions on Molecular & Atomic Nanostructures (EPIC-MAN)

since 2006 Member of the International Committee of the Intern. Symposium on Atomic Level Characterizations for New Materials and Devices (ALC)

since 2006 Member of the International Scientific Committee of the Symposium on Surface Science (3S)

since 2002 Member of the International Scientific Committee of the International Workshop on Inelastic Ion - Surface Collisions (IISC)

since 1998 Member of the International Advisory Committee of the International Conference on Highly Charged Ions (HCI)

2009 - 2019 Member of the International Committee of the Conference on Elementary Processes in Atomic Systems (CEPAS)

2004 - 2012 Member of the International Scientific Committee of the International Conference on Atomic Collisions in Solids (ICACS)

1997 - 2003 Executive Officer and Member of the Executive Committee of the International Conference on the Physics of Electronic, Photonic and Atomic Collisions (ICPEAC)

## Organisation of international conferences and workshops

ICPEAC-2023 33<sup>rd</sup> Intern. Conference on Photonic, Electronic and Atomic Collisions 2023, Ottawa, Canada, July 25 – Aug. 1, 2023 (international chair)

3S\*22 Symposium on Surface Science 2022, St. Christoph am Arlberg/Austria, March 13 – 19, 2022 (conference co-chair and local organizer)

ViCPEAC-2021 32<sup>nd</sup> Intern. Conference on Photonic, Electronic and Atomic Collisions 2021, virtual event only, July 20 - 23, 2021 (international chair)

3S\*20 Symposium on Surface Science 2020, St. Christoph am Arlberg/Austria, March 1 – 7, 2020 (conference co-chair and local organizer)

ICPEAC-2019 31<sup>st</sup> Intern. Conference on Photonic, Electronic and Atomic Collisions 2019, Douville, France, July 24 - 30, 2019 (international vice-chair)

3S\*18 Symposium on Surface Science 2018, St. Christoph am Arlberg/Austria, Feb. 25 – March 3, 2018 (conference co-chair and local organizer)

ECAMP-2016 12<sup>th</sup> European Conference on Atomic, Molecular and Optical Physics 2016, Frankfurt, Germany, Sep. 4 - 9, 2016 (international vice-chair)

3S\*16 Symposium on Surface Science 2016, St. Christoph am Arlberg/Austria, Feb. 21 - 27, 2016 (conference co-chair and local organizer)

3S\*14 Symposium on Surface Science 2014, St. Christoph am Arlberg/Austria, March 9 - 15, 2014 (conference co-chair and local organizer)

ECAMP11 11<sup>th</sup> European Conference on Atomic, Molecular and Optical Physics 2013, Aarhus, Denmark, June 24 - 28, 2013 (international chair)

SPARC2012 SPARC-Collaboration Workshop 2012, Austrian Academy of Sciences, Vienna, Austria, Nov. 26 - 28, 2012 (organizing committee member)

- 3S\*12 Symposium on Surface Science 2012, St. Christoph am Arlberg/Austria, March 11 - 17, 2012 (conference co-chair and local organizer)
- PWI 2010 9<sup>th</sup> Annual Meeting of the Plasma-Wall-Interaction Task Force of EFDA, Vienna/Austria, Nov. 3 - 5, 2010 (local organizer)
- 3S\*10 Symposium on Surface Science 2010, St. Christoph am Arlberg/Austria, March 7 - 13, 2010 (conference co-chair and local organizer)
- 3S\*08 Symposium on Surface Science 2008, St. Christoph am Arlberg/Austria, March 2 - 8, 2008 (conference co-chair and local organizer)
- IISC-16 International Workshop on Inelastic Ion-Surface Collisions, Schloss Hernstein, NÖ/Austria, Sep. 17 - 22, 2006 (conference chair)
- 3S\*06 Symposium on Surface Science 2006, St. Christoph am Arlberg/Austria, March 5 - 11, 2006 (conference co-chair and local organizer)
- 3S\*04 Symposium on Surface Science 2004, St. Christoph am Arlberg/Austria, Feb. 28 - March 6, 2004 (conference co-chair and local organizer)
- 3S\*02 Symposium on Surface Science 2002, St. Christoph am Arlberg/Austria, March 3 - 9, 2002 (conference co-chair and local organizer)
- ECOSS-18 18th European Conference on Surface Science, Vienna/Austria, Sep. 21 - 24, 1999 (organizing committee member)
- FA-AMP 1997 Fachtagung des Fachausschuss Atom-, Molekül & Plasmaphysik der ÖPG, TU Wien, Vienna, Austria, 23. Sep. 1997 (local organizer)
- ICPEAC-1997 20th International Conference on the Physics of Electronic and Atomic Collisions, Vienna/Austria, July 23 - 19, 1997 (local co-chair)
- 3S\*95 Symposium on Surface Science 1995, Kitzsteinhorn/Austria, April 23 - 29, 1995 (conference co-chair and local organizer)
- HCI-1994 7th International Conference on the Physics of Highly Charged Ions, Vienna/Austria, Sep. 19 - 23, 1994 (chair of the local organizing committee)
- FA-AMP 1988 Fachtagung des Fachausschuss Atom-, Molekül & Plasmaphysik der ÖPG, TU Wien, Vienna, Austria, 27. Sep. 1988 (local co-organizer)
- ÖPG-1985 35. Annual Meeting of the Austrian Physical Society ÖPG, TU Wien Austria, Sep. 23 - 27, 1985 (member of the local organizing committee)

## Experience in scientific evaluation, review and impact assessment

- 2007 - 2016 Member of Program Advisory Committee for Interdisciplinary Research (CERIG) at GANIL in Caen/France
- 2007 - 2013 Member of ASDEX Upgrade Program Comm. at the MPI Plasma Physics Garching/D
- 2007 - 2010 EU expert evaluator for the European Research Council (7<sup>th</sup> Framework Program FP)
- 2007 - 2009 Expert Evaluator for the annual review of a EU-Network of Excellence (6<sup>th</sup> FP)
- 2004 - 2006 Member of the EU-Panel for evaluation of NEST proposals (6<sup>th</sup> FP)
- 2004 Member of the EU-Panel for the evaluation of Marie Curie Conferences (6<sup>th</sup> FP)
- 2003 - 2004 EU expert evaluator for EURATOM Fusion fellowships (6<sup>th</sup> FP)
- 2003 Member of the EU-Physics Panel for Marie Curie Fellowships (6<sup>th</sup> FP)
- 2003 EU expert evaluator for EURATOM Training Fellowships (6<sup>th</sup> FP)
- 2003 Member of the EU-Physics Panel for Intra - European Fellowships (EIF) (6<sup>th</sup> FP)
- 1999 Chairman of EU-Physics Panel for evaluation of Indiv. Marie Curie Fellowships (4<sup>th</sup> FP)
- 1999 Expert Evaluator for MidTerm Reviews of TMR Networks
- 1996 - 1999 Member of the EU-Physics Panel for the evaluation of TMR research networks (4.FP) and TMR research training grants (3<sup>rd</sup> and 4<sup>th</sup> FP)
- 1990 - 1991 Scientific Secretary of the International Commission for the Evaluation of Physics Research in Austria

- 1992 - present Referee and Evaluator for various National Funding Agencies (e.g. DFG, US-DOE, Helmholtz-Gemeinschaft, ÖAW – Austrian Academy of Sciences, ANR, CNRS, Czech Academy of Sciences, NFST-Chile, NRF South Africa, etc.)
- 1985 - present Referee for numerous international scientific journals (e.g. Nature Nanotechnology, Phys.Rev.Lett., PRA, PRB, ACS Appl. Nano Mat., Nature Scientific Reports, JPB, 2D Materials, CPL, EPJ, EPL, PLA, NIMB, IJMS, RSI, JNM, etc.)

## Achievements in teaching

### Teaching Awards

- 2020 **Best Teacher Award 2020** - TU Wien, Faculty of Physics
- 2019 Finalist - Best Teacher Award 2019 - TU Wien, Faculty of Physics
- 2019 **Best Lecture Award 2019** - TU Wien, Faculty of Physics
- 2018 Finalist - Best Teacher Award 2018 - TU Wien, Faculty of Physics
- 2018 **Best Lecture Award 2018** - TU Wien, Faculty of Physics
- 2017 **Best Lecture Award 2017** - TU Wien, Faculty of Physics



### Teaching (list of lectures and courses)

Main lectures at present: Fundamentals of Physics I (Mechanics, Waves, Thermodynamics, Relativity) and Fundamentals of Physics III (Quantum Mechanics, Atomic & Nuclear Physics) for Physics Bachelors (1<sup>st</sup> and 3<sup>rd</sup> Semester), special Course on Atomic Collision Physics for Physics Master and Diploma Students.

#### Lectures and courses currently offered

- 130.001/130.002 VU Grundlagen der Physik Ia & Ib WS 8,0 (Compulsory course and exercises on Fundamentals of Physics Ia & Ib)\*
- 134.120 VO Grundlagen der Physik III WS 3,0 (Compulsory course on Fundament. of Physics III)\*\*
- 130.005 VU Einführung in das Physikstudium (Introduction into the physics curriculum)
- 134.514 VO Atomare Stoßprozesse (special course on atomic collision physics)
- 134.172 VO Ionen-Festkörper-Wechselwirkungen (special course on ion-solid-interactions)
- 136.067 VO Ringvorlesung Doktoratskolleg TU-D
- 134.133 PA Projektarbeit Experimentelle Atomphysik
- 134.141 PA Projektarbeit Ionenphysik
- 134.065 PV Privatissimum f. Dissertanten
- 134.081 SE Seminar aus Allgemeiner Physik

\* received the "Best Lecture Award 2019" of the Faculty of Physics at TU Wien

\*\* received the "Best Lecture Award 2018" of the Faculty of Physics at TU Wien

#### Lectures and courses offered in the past

- 138.005 VO Grundlagen der Physik I WS 5,0 (Compulsory course on Fundamentals of Physics I)\*\*\*
- 134.105 VO Grundlagen der Physik II SS 5,0 (Compulsory course on Fundamentals of Physics II)
- 134.109 UE Übungen zu Grundlagen der Physik I (Compulsory exercises)
- 134.110 UE Übungen zu Grundlagen der Physik II (Compulsory exercises)
- 134.125 UE Übungen zu Grundlagen der Physik III (Compulsory exercises)
- 134.114 PA Projektarbeit Interactions with Surfaces
- 134.051 PR Vorb. zur Diplomarbeit f. Lehramtskandidaten

\*\*\* received the "Best Lecture Award 2017" of the Faculty of Physics at TU Wien

## Doctoral College TU-D

Participation (as Co-PI) in the TU Doctoral College “Unraveling Advanced 2D Materials, TU-D” and its teaching/training activities (Main PI: Florian Libisch)

## Supervision of 32 PhD students (degree received in)

Martin Gieler (1992)

Kristine Töglhofer (1993)

Manfred Pöckl (1995)

Christoph Lemell (1998)

Hannes Eder (2000)

Günter Hayderer (2000)

Johannes Stöckl (2003)

Stefan Cernusca (2003)

Sylvicley Figueira da Silva (2007)

Dorian Bridi (2008)

Walter Meissl (2008)

Gregor Kowarik (2011)

Katharina Igenbergs (2011)

Robert Ritter (2013)

Matthias Willensdorfer (2013)

Katharina Dobes (2014)

Elisabeth Gruber (2017)\*

\* recipient of the Hannspeter Winter prize 2017  
and Loschmidt Prize of CPG 2018

Bernhard Berger (2017)

Florian Laggner (2017)

Reinhard Stadlmayr (2020)

Janine Schwestka (2020)\*\*

\*\* recipient of the Loschmidt Prize of CPG 2021

Georg Harrer (2020)

Paul Szabo (2021)\*\*\*

\*\*\* Promotion “sub auspiciis paesidentis” 26.01.2022

Nina Mühlich (in progress)

Herbert Biber (in progress)

Anna Niggas (in progress)

Christian Cupak (in progress)

Gabriel Szabo (in progress)

Lidija Radovanovic (in progress)

Matthias Werl (in progress)

Johannes Brötzner (in progress)

Martina Fellingner (in progress)

**Supervision of 68 diploma/master students** (degree received in)

Manfred Pöckl (1992)  
Walter Koppensteiner (1992)  
Martin Weber (1993)  
Christoph Lemell (1994)  
Peter Platzler (1996)  
Gregor Horvath (1996)  
Johannes Stöckl (2000)  
Stefan Cernusca (2000)  
Ernst Galutschek (2000)  
Alexander Diem (2002)  
Benedikt Hackl (2004)  
Karl Schmid (2004)  
Manfred Schabernig (2005)  
Michael König (2005)  
Martin Fürsatz (2006)  
Katharina Kaska (2006)  
Martin Simon (2006)  
Gregor Kowarik (2007)  
Katharina Igenbergs (2007)  
Asena Kuzucan (2007)  
Clemens Grünberger (2007)  
Oliver Hekele (2008)  
Michael Brunmayr (2008)  
Robert Ritter (2008)  
Daniel Winklehner (2008)  
Josef Kamleitner (2009)  
Katharina Dobes (2009)  
Christoph Gösselsberger (2009)  
Matthias Willensdorfer (2009)  
Christopher Vasko (2009)  
Kai Iskratsch (2009)  
Markus Hinterhofer (2010)  
Martin Sturn (2010)  
Paulus Naderer (2011)  
Markus Wallerberger (2011)  
Elisabeth Gruber (2012)  
Dominik Schrempf (2013)  
Alexander Veiter (2013)  
Florian Laggner (2013)  
Valerie Smejkal (2016)  
Reinhard Stadlmayr (2016)  
Janine Schwestka (2016)  
Lorenz Bergen (2016)  
Sebastian Keerl (2016)  
Georg Harrer (2016)  
Marko W. Mayr (2017)  
Dominic Blöch (2017)  
Johannes Gnilsen (2017)  
Matthias Schmidtmayr (2017)  
David Melinc (2017)  
Jakob Kirschner (2017)  
Paul Szabo (2017)  
Lukas Leonhartsberger (2018)  
Herbert Biber (2018)  
Anna Niggas (2019)  
Christian Cupak (2020)  
Gabriel Szabo (2020)  
Matthias Werl (2020)  
Johannes Maximilian Kurz (2020)  
Lidija Radovanovic (2020)  
Richard Bergmayr (2021)  
Daniel Mayer (2022)  
Markus Wappl (2022)  
Johannes Brötzner (2022)  
Fellinger Martina (2022)  
Luca Hofstadler (in progress)  
Tobias Pebersdorfer (in progress)