# Curriculum Vitae

## Philipp Scholl

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✉ rayleighsjeans@gmail.com

# Curriculum Vitae

## Personal Information

| | |
|---|---|
| Name | Philipp Scholl |
| Address | 16 An Tor Aonarach, Dunaree, Kingscourt, Co. Cavan<br>A82 V2H0, Irland, Ireland |
| Telephone | +353 87 1922755, +49 1520 2095226 |
| eMail | rayleighsjeans@gmail.com |
| Date of Birth | 15th of June 1994 in Demmin |
| Nationality | Germany |
| Family Status | married |
| Sex | Male |

## Languages

| | |
|---|---|
| German | first language, mother tongue |
| English | second language, first foreign lingo, C2 certificate<br>7 years of school education |
| Russian | third language, second foreign lingo<br>5 years of school education |

## Professional Experience

12/2024 – now **Software Development - Kernel/NCOS**
*IBM Research Lab; Hybrid Data Management*, Dublin
Agile development in object storage projects with cloud functionality for DB2; C/C++, Python, unit and stress testing

07/2021 – 04/2024 **Software Developer - C/C++**
*Krauss-Maffei Wegmann Nexter Defense Systems*, Munich
Advanced C/C++, embedded development, frameworks, APIs, AI, computer generated forces, dynamics & simulator logic

11/2017 – 05/2021 **Researcher/Scientist, Ph.D. - Plasma Fusion**
*Max-Planck Institute for Plasma Physics*, Greifswald
Project management, large scale data analysis, science, modelling, simulation, embedded development, international collaboration, professional documentation

## Higher Education

10/2012 – 09/2015 **Bachelors Degree in Physics**
*Ernst-Moritz-Arndt University*, Greifswald
Bachelor of Sciences

10/2012 – 10/2017 **Master's Degree in Physics**
*Ernst-Moritz-Arndt University*, Greifswald
Master of Sciences

11/2017 – now **Doctor of Philosophy - Physics**
*Max-Planck Institute for Plasma Physics*, Greifswald
Thesis submitted, defense pending

### Additional Training

02/2022 **Advanced C++ (for Embedded Systems)**
*MicroConsult Microelectronics Consulting & Training GmbH*, Munich
basics, patterns, idioms, paradigms, 'modern style' C++

Jun. 2019 **Plan, Motivate, Achieve: Time and Self-Management**
*Transferable Skills Seminar*, R. Thompson
International Helmholtz Graduate School for Plasma Physics

Jun. 2019 **Presentation Skill Workshop**
*Transferable Skills Seminar*, B. Hey
International Helmholtz Graduate School for Plasma Physics

## School

08/2000 – 03/2004 **Elementary School**
*Grundschule Jarmen*
*Jarmen*

08/2004 – 08/2010 **Middle School**
*Regionale Schule Jarmen*
*Jarmen*

08/2010 – 06/2012 **Academic High School**
*Schlossgymnasium Gützkow, Gützkow*
Higher Education Entrance Qualification
(Certificate included)

## Technical & Software Development Experience

2021-24 **Software Engineering**
*Krauss-Maffei Wegmann; Software Architecture & Components*, Munich
advanced C/C++; Scrum/agile development and design; extended unit, component and regression testing; embedded development; (physics) simulation and AI; CI/CD, Jira, Git/SVN; CMake & CTest/GTest; Havok Engine & Unreal Engine 5; GTC 2023 attendance

2017-21 **Data Acquisition Development**
*Max-Planck Institute for Plasma physics*, Greifswald
embedded C/C++ development for data acquisition, LabVIEW; (near) real-time software development; data center API for research purposes; Python: large scale data generation, modelling, evaluation and visualization, stereoscopic tomography and simulation; IDL & Fortran; Git; documentation and presentation of technical content

2016-17 **HPC C/C++ Particle-In-Cell Simulation**
*Ernst-Moritz-Arndt University; Computational Sciences*, Greifswald
HPC C/C++ development for particle physics simulation of low-temperature gaseous discharges; Open/MPI & Slurm; multithreading

2016 **Neural Networks and Large Linear Optimizations**
*Ernst-Moritz-Arndt University; Advanced Numerics*, Greifswald
introduction to and development of neural networks, MATLAB

2015 **Stereoscopic Particle Tracking and Video Processing**
*Ernst-Moritz-Arndt University; Complex Plasmas*, Greifswald
multi-camera system video analysis, stereoscopic 3D tracking of microscopic particles; development and construction of in-situ microelectronics; MATLAB

2012-15 **Computational Sciences**
*Ernst-Moritz-Arndt University*, Greifswald
C/C# numerical simulation (electrostatic Poisson); Linux development; Assembler programming for custom built electronics

## Research Experience (Excerpt)

11/2017 – now **PhD: 'Impurity radiation and transport at the stellarator Wendelstein 7-X'**
*Division of Stellarator Dynamics and Transport, Prof. Dr. T. Klinger*
Max-Planck Institute for Plasma Physics, Greifswald
real time feedback on plasma radiation, evaluation of local radiation sensitivity, Python & LabVIEW (C++) embedded software development

11/2017 – 05/2021 **International Helmholtz Graduate School for Plasma Physics**
*Graduate School for Doctoral Candidates at the MPI for Plasma Physics*
MPI for Plasma Physics, Greifswald; University of Greifswald
presentations and participation in colloquia, workshops and conferences

10/2016 – 10/2017 **Master Thesis: 'Kinetic Effects in RF Discharges'**
*Research Group of Prof. Dr. Ralf Schneider*
Institute of Physics, University of Greifswald
C/C++ particle simulation code development - C++ 2d3v PIC simulation of ccrf discharges

04/2016 – 10/2016 **Research Group Internship**
*'Electric field strength spectroscopy in dielectric barrier discharges'*
Research Group of Prof. Dr. Jürgen Meichsner
Institute of Physics, University of Greifswald

10/2015 – 04/2016 **Advanced Practical Laboratory Course**
*Advanced experimental methodology*
Institute of Physics, University Greifswald

10/2015 – 07/2016 **Intership in the Group of Prof. Dr. Melzer**
*Complex Plasma Systems, Experiment Setup*
Institute of Physics, University of Greifswald

05/2015 – 09/2015 **Bachelor Thesis: 'Modenanregung in Yukawa-Bällen'**
*Research Group of Prof. Dr. Andre Melzer*
University of Greifswald
Stereoscopic particle diagnostics with MATLAB

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10/2012 – 04/2014 **Basic Practical Laboratory Course**
*Basic experiments in all research fields at the Institute of Physics*
University of Greifswald

## Lecturing Experiences

2014 – 2018 **Assistant Associate in the Practical Course - Physics**
*in: Study Programme of Humane Medicine*
Institute of Physics, University of Greifswald

## Publications (Excerpt)

May 2018 **'PIC Simulation of electronegative CCRF discharges'**
*Authors: P. Matthias, R. Schneider, J. Meichsner, G. Bandelow, J. Duras, K. Matyash, K.-F. Lüskow, D. Kahnfeld, S. Kemnitz, L. Lewerentz and P. Hacker*, doi: 10.1140/epjd/e2017-80565-y

Dec. 2019 **'Measurement of edge ion temperature in W7-X with island divertor by retarding field analyzer'**
*Authors: Y. Li, T. Henkel, Y. Liang, A. Knieps, P. Drews, C. Killer, D. Nicolai, J. Cosfeld, J. Geiger, Y. Feng, F. Effenberg, D. Zhang, P. Hacker, D. Höschen, G. Satheeswaran, S. Liu, O. Grulke, M. Jakubowski, S. Brezinsek, M. Otte, O. Neubauer, B. Schweer1, G. S. Xu, J. Cai, Z. Huang, and the W7-X Team*, doi: 10.1088/1741-4326/ab3a79

Jul. 2019 **'The influence of impurity radiation locations on the plasma performance in stellarator Wendelstein 7-X'**
*Authors: D. Zhang, R. Burhenn, F. Reimold, P. Hacker, L. Giannone, K. J. Brunner, B. Buttenschön, G. Fuchert, H. P. Laqua, K. Rahbarnia, C. D. Beidler, S. Brezinsek, Y. Feng, M. Jakubowski, R. König*

Feb. 2020 **'Absence of Non-Local Electron Heat Transport in ASDEX Upgrade and Wendelstein 7-X and Modelling with the Transport Code ASTRA'**
*Authors: K. Höfler, T. Happel, P. Hennequin, U. Höfel, F. Ryter, U. Stroth, A. Bock, P. David, S. Denk, A. Dinklage, G. Fuchert, P. Hacker, M. Hirsch, P. A. Schneider, J. Schilling, T. Stange, G. Tardini, T. Andreeva, M. Beurskens, S. Bozhenkov, K. J. Brunner, N. Chaudhary, H. Damm, U. Neuner, J. W. Oosterbeek, E. Pasch, K. Rahbarnia, H. Thomsen, M. Zanini, D. Zhang, the ASDEX Upgrade Team, the Wendelstein 7-X Team*

Sep. 2020 **'Stellarator-Tokamak Energy Confinement Comparison based on ASDEX Upgrade and Wendelstein 7-X Hydrogen Plasmas'**
*Authors: U. Stroth, G. Fuchert, M. N.A. Beurskens, G. Birkenmeier, P. Schneider, E.R. Scott, K.J. Brunner, F. Günzkofer, P. Hacker, O. Kardaun, J. Knauer, K. Rahbarnia, D. Zhang*, doi: 0.1088/1741-4326/abbc4a

Jan. 2023 **'First feedback-controlled divertor detachment in W7-X: Experience from TDU operation, prospects for operation with actively cooled divertor'**
*Authors: M. Krychowiak, R. König, T. Barbui, S. Brezinsek, J. Brunner, F. Effenberg, M. Endler, Y. Feng, E. Flom, Y. Gao, D. Gradic, P. Hacker, J.H. Harris, M. Hirsch, U. Höfel, M. Jakubowski, P. Kornejew, M. Otte, A. Pandey, T.S. Pedersen, A. Puig, F. Reimold, O. Schmitz, T. Schröder, V. Winters, D. Zhang*, doi: 10.1016/j.nme.2023.101363

Sep. 2021 **'Plasma radiation behavior approaching high-radiation scenarios in W7-X'**
*Authors: D. Zhang, R. Burhenn, Y. Feng, R. König, B. Buttenschön, C.D. Beidler, P. Hacker, F. Reimold, H. Thomsen, R. Laube, T. Klinger, [...], the W7-X Team*, doi: 10.1088/1741-4326/ac2b75

Oct. 2021 **'2D measurements of parallel counter-streaming flows in the W7-X scrape-off layer for attached, detached plasmas'**
*Authors: V. Perseo, V. Winters, Y. Feng, F. Reimold, O.P. Ford, R. König, S.A. Bozhenkov, K.J. Brunner, R. Burhenn, P. Drewelow, D.A. Ennis, Y. Gao, D. Gradic, P. Hacker [...]and the W7-X Team*, doi: 10.1088/1741-4326/ac277a

Oct. 2021 **'Bolometer tomography on W7-X for study of radiation asymmetry'**
*Authors: D. Zhang, R. Burhenn, C.D. Beidler, Y. Feng, H. Thomsen, C. Brandt, S. Buller, F. Reimold, P. Hacker [...]and the W7-X Team*, doi: 10.1088/1741-4326/ac2778

Jul. 2020 **'Large wetted areas of divertor power loads at Wendelstein 7-X'**
*Authors: H. Niemann, P. Drewelow, M. W. Jakubowski, A. Puig Sitjes, B. Cannas, Y. Gao, F. Pisano, R. König, R. Burhenn, P. Hacker, F. Reimold, D. Zhang, K. J. Brunner, J. Knauer, T. Sunn Pedersen and the W7-X Team*, doi: 10.1088/1741-4326/ab937a

## Extra-Curriculars & Extramural Activities

2007 – 2010 **Participation in the**
**'Baltic Sea School Exchange Program'**
*Finnvedens Gymnasium 'Figy'; Värnamo, Sweden*

2011 **Qualification for the German Dragon Boat National Team 'Junior A'**
*Participation in the 10th IDBF World Dragon Boat Racing Championships*
Tampa Bay, FL; United States of America
9 Gold Medals, 2 Silver Medals

2012 **Entering of the 'Hochschul-Sportgemeinschaft Greifswald e.V'**
*Department of Canoe/Dragonboat*
*2015-2016 Trainer of the Dragon Boat Team 'Greifendrachen'*

2017 **Qualification for the German Dragon Boat National Team 'U24'**
*Participation in the 13th IDBF World Nations Championships*
Divonne-Les-Baines, France

2021 – now **(Olympic) Weightlifting Team Participation**
**ESV München Neuaubing – Local League and Individual Competitions**
*County Oberbayern and Bavarian League 2021/22, 22/23, 23/24*
1st place Munich Championships '23, 2nd place Oberbayern Championships '23

## Conferences & Workshops

May 2019 **Consistently calculating the radiated power in near real time at the stellarator Wendelstein 7-X**
*P. Hacker, F. Reimold, D. Zhang, M. Krychowiak, R. Burhenn, T. Klinger*, DPG-Frühjahrstagung der Sektion Materie und Kosmos (SMuK), Munich, Germany, 2019

May 2019 **Plasma Terminating Events in Large Stellarators**
*D. Maier, A. Dinklage, J. Baldzuhn, R. Burhenn, R. Bussiahn, B. Buttenschön, P. Hacker, [...], the W7-X Team*, DPG-Frühjahrstagung der Sektion Materie und Kosmos (SMuK), Munich, Germany, 2019

Jul. 2019 **The influence of impurity radiation locations on the plasma performance in stellarator Wendelstein 7-X**
*D. Zhang, R. Burhenn, F. Reimold, P. Hacker, [...], the W7-X Team*, 46th European Physical Society Conference on Plasma Physics, Milan, Italy, July 2019

Jul. 2019 **The bolometer diagnostic at the stellarator Wendelstein 7-X**
*P. Hacker, D. Zhang, R. Burhenn, B. Buttenschön, T. Klinger, W7-X. Team*, DPG-Frühjahrstagung der Sektion AMOP (DPG 2018), Erlangen, Germany, March 2018

## Lectures & Classes

Oct. 2020 **Introduction to astrophysics**
*Prof. Dr. Per Helander*, Max Planck Institute for Plasmaphysics, Greifswald

Oct. 2019 **Machine Learning**
*Prof. Dr. M. Stanke*, Institute of Mathematics, University of Greifswald

Oct. 2019 **Non-Neutral Plasmas & Trapped Charged Particles**
*Prof. Dr. T. Sunn Pedersen, E. Stenson, Prof. Dr. L. Schweikhard, M. Stoneking, C. Surko*, Max Planck Institute for Plasmaphysics, Greifswald

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