

# Application Form

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## Philipp Scholl

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# Curriculum Vitae

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## Personal Information

Name Philipp Scholl  
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W91 C3Y6, Dunlavin, Co. Wicklow, Ireland  
Telephone +353 87 1922755  
eMail rayleighsjeans@gmail.com  
Date of Birth 15th of June 1994 in Demmin  
Nationality Germany  
Family Status married  
Sex Male

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## Languages

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

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## 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)

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## 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

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## Professional Experience

- 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

### 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

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## 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

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

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## Lecturing Experiences

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

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## Publications (Excerpt)

- May 2018 **'PIC Simulation of electronegative CCRF discharges'**  
*doi: 10.1140/epjd/e2017-80565-y*
- Dec. 2019 **'Measurement of edge ion temperature in W7-X with island divertor by re-tarding field analyzer'**  
*doi: 10.1088/1741-4326/ab3a79*
- Sep. 2020 **'Stellarator-Tokamak Energy Confinement Comparison based on ASDEX Upgrade and Wendelstein 7-X Hydrogen Plasmas'**  
*doi: 10.1088/1741-4326/abbc4a*
- Jan. 2023 **'First feedback-controlled divertor detachment in W7-X: Experience from TDU operation, prospects for operation with actively cooled divertor'**  
*doi: 10.1016/j.nme.2023.101363*
- Sep. 2021 **'Plasma radiation behavior approaching high-radiation scenarios in W7-X'**  
*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'**  
*doi: 10.1088/1741-4326/ac277a*
- Oct. 2021 **'Bolometer tomography on W7-X for study of radiation asymmetry'**  
*doi: 10.1088/1741-4326/ac2778*
- Jul. 2020 **'Large wetted areas of divertor power loads at Wendelstein 7-X'**  
*doi: 10.1088/1741-4326/ab937a*

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## 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*