

# Claude Krantz

## Curriculum Vitae

Zum Marienhäuschen 9  
35041 Marburg, Germany

☎ +49 (0) 176 63353276

✉ [claudio.krantz@zweergenschaenke.net](mailto:claudio.krantz@zweergenschaenke.net)

## Personal Details

Name	Claude Krantz, Dr. rer. nat. Dipl.-Phys.
born	on 14th May 1980 in Luxembourg
Citizenship	Luxembourgian
Civil status	married, one child
Address	Zum Marienhäuschen 9, 35041 Marburg
Employer	GSI Helmholtz Centre for Heavy-Ion Research, Darmstadt

## Professional Career

- Since April 2020 Staff scientist in the “Beam Cooling” department of GSI Helmholtz Centre for Heavy-Ion Research, with focus on electron cooling.
- Since 2017 Guest scientist at the Max Planck Institute for Nuclear Physics.
- 2015 – 2020 Accelerator physicist at the Marburg Ion-Beam Therapy Centre (MIT). Research on synchrotron beam extraction.
- 2017 – 2020 Deputy Head of Accelerator Operations at MIT.
- 2018 – 2019 Head of Accelerator Controls group at MIT.
- 2009 – 2015 Postdoctoral scientist at the Max Planck Institute for Nuclear Physics (MPIK).
- 2011 – 2015 Co-development and commissioning of the cryogenic heavy-ion storage ring CSR of MPIK. Development of the electron cooler and related particle detectors.
- 2012 – 2015 Teaching at Heidelberg University (tutorials on atomic and quantum physics).
- 2009 – 2012 Operation of an electron cooler at the heavy-ion storage ring TSR of MPIK. Realisation of many experiments on electron cooling and atomic physics.

## Education

### Doctoral Studies

- 28th October 2009 Graduation with great honour (“*magna cum laude*”) to a Doctor of Natural Science (Dr. rer. nat.) of the University of Heidelberg.
- 2006 – 2009 PhD work at the heavy-ion storage ring TSR of MPIK on the topic of “*Intense Electron Beams from GaAs Photocathodes as a Tool for Molecular and Atomic Physics*”, under supervision by Prof. Dr. Andreas Wolf.

### Graduate and Undergraduate Studies

- 3rd March 2006 Graduation in physics (“Diplom-Physiker”, Dipl.-Phys.) with overall verdict *very good* (“*sehr gut*”).
- 2000 – 2006 Studies in physics at the University of Heidelberg, Germany.
- 2005 – 2006 Master work (“Diplomarbeit”) on the topic of “*Quantum States of Neutrons in the Gravitational Field*” at the Institute of Physics in Heidelberg, under supervision by Prof. Dr. Hartmut Abele.
- March 2005 Research at Institut Laue-Langevin in Grenoble, France.
- 15th April 2002 Intermediate graduation (“Vordiplom”) in physics with overall verdict *very good*.

## College and School Education

- 29th June 1999 Award of the higher education qualification (“Diplôme de fin d’études secondaires”) of the Grand-Duchy of Luxembourg, with overall verdict *very good* (“*très bien*”).
- 1992 – 1999 Secondary education at the high school “Lycée de Garçons” in Esch/Alzette, G.-D. of Luxembourg.
- 1985 – 1992 Elementary education at the primary school of Pontpierre, G.-D. of Luxembourg.

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## Notable Skills

### Languages

- Native language Luxembourgish
- Fluent in German, English, French
- Basic knowledge Latin

### Information Technology

- Software MS Office, LibreOffice, L<sup>A</sup>T<sub>E</sub>X, Mathematica, SolidEdge, Origin, QtiPlot, GnuPlot, MAD/X, MIRKO, SIMION, BetaCOOL.
- Programming C/C++, Mathematica, Python, ROOT, bash.
- Op. Systems GNU/Linux (Debian, Ubuntu, OpenSuse), FreeBSD, Windows, Windows Server.

### Special Qualifications

- Radiation protection Qualified radio-protection officer according to the German technical qualification guideline S6.4.
- Cranes License to operate remote-controlled overhead cranes.

### Non-Professional Activities

- Leisure Running, cycling, archery.
- Memberships German Physical Society (DPG), Naturschutzbund (NABU), Schnelle Ionen.

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## Publications

- Dissertation C. Krantz, *Intense Electron Beams from GaAs Photocathodes as a Tool for Molecular and Atomic Physics*, Universität Heidelberg, 2009

Articles (Selection, full list of publications at <http://findus.zwergenschaenke.net/~puma/publist.html>.)

- C. Krantz et al., *Transverse electron cooling of heavy molecular ions*, Phys. Rev. Accel. Beams **24** (2021) 050101.
- C. Krantz et al., *Slow Extraction Techniques at the Marburg Ion-Beam Therapy Centre*, Proc. 9th Int. Particle Accelerator Conf., 2018, pp. 1084.
- C. Krantz et al., *Single-particle detection of products from atomic and molecular reactions in a cryogenic ion storage ring*, Nucl. Instrum. Methods Phys. Res., Sect. A **851** (2017) 92–102.
- C. Krantz et al., *Recombination of open-f-shell tungsten ions*, J. Phys. B: At. Mol. Opt. Phys. **50** (2017) 052001.
- C. Krantz et al., *The Cryogenic Storage Ring and its application to molecular ion recombination physics*, J. Phys.: Conf. Ser. **300** (2011) 012010.
- C. Krantz et al., *Enhanced Schottky signals from electron-cooled, coasting beams in a heavy-ion storage ring*, Nucl. Instrum. Methods Phys. Res., Sect. A **629** (2011) 1–5.
- C. Krantz et al., *A Pulsed Electron Source for the HITRAP Cooler Trap*, GSI Scientific Report 2009, p. 375.
- C. Krantz et al., *An Ultra Cold Photoelectron Gun for the Heidelberg TSR Target Section*, J. Phys.: Conf. Ser. **192** (2009) 012025.