

Dipl.-Ing. Mag.rer.nat. Dr.techn.

Bernhard Seiwald

*Plasma Physics;
Computational Physics*

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Personal Information

Date of Birth 17 Jul. 1967
Place of Birth Salzburg / Austria
Citizenship Austria
Military Service Jan. – Aug. 1986, Salzburg

Currently Working at

Plasma Research Laboratory
Research School of Physical Sciences and Engineering
Oliphant Building 60, Mills Road
The Australian National University
CANBERRA ACT 0200
Australia

Expertise

- Plasma physicist.
- Computational physicist.
- Optimization of complex problems - development of a scheme and programming of a computer simulation for optimizing stellarators (e.g. TJ-II).
- Design, programming and implementation of data bases (magnetic configuration database).
- Reconstruction/post-processing of VMEC equilibria.
- Parallel programming (MPI).
- Writing project proposals.

Research Fields and Projects

- Jul. 1996 – **Neoclassical Transport, Stellarator Optimization, Reconstruction of MHD Equilibria**, Project title: *Transport and Heating in Toroidal Devices*, Project of the Association EURATOM-ÖAW.
- Jan. 2004 – **Neoclassical Transport, Stellarator Optimization**, Project title: *Stochastic Mapping Technique and Neoclassical Transport*, Project of the Austrian Science Fund (FWF).

Professional Experience, Teaching

- Mar. 2011 – **Research Officer**, Plasma Research Lab, Research School of Physical Sciences and Engineering, The Australian National University, Canberra, Australia.
- May 2010 – **Project Leader**, Project title: *EPA - Energy Potential Analysis*, Austria.
Jul. 2010 Energy systems, Resources
- Aug. 2009 – **Self-employed**, Design and programming of a vacuum magnetic configuration data base for stellarators for data obtained within the co-operation with the *Association EURATOM-ÖAW*.
May 2010 Data base programming, Fusion Plasma Physics
- Feb. 2009 – **Research assistant**, Institute of Theoretical and Computational Physics, Graz University of Technology, Austria, within the *Association EURATOM-ÖAW*.
Jul. 2009 Fusion Plasma Physics
- Feb. 2008 – **Self-employed**, Initialization of a *Center for Plasma and Energy Physics*, Stellarator Optimizer SORSSA refined.
Jan. 2009 Organization, Initialization, Fusion Plasma Physics
- Oct. 1998 – **Research assistant**, Institute of Theoretical and Computational Physics, Graz University of Technology, Austria, within the *Association EURATOM-ÖAW*.
Jan. 2008 Fusion Plasma Physics
- SS 2003 **Tutor**, Institute of Theoretical and Computational Physics, Graz University of Technology, Austria.
for the computational lecture *Computer Simulations (Computersimulationen)*
- WS 1998/99 – **Tutor**, Institute of Theoretical and Computational Physics, Graz University of Technology, Austria.
WS 2001/02 for the computational lectures *Computer software in physics focused on Matlab (Applikationssoftware in der Physik)* and *Fortran 90/95*
- Apr. 1995, **IT Specialist**, *Techno-Z*, Salzburg, Austria.
Jul. – Sep. 1995 Design, programming and implementation of data bases
- Sep. 1996 – **IT Specialist**, *Techno-Z*, Salzburg, Austria.
Jul. 1997 Design, programming and implementation of data bases

Further Education

- Nov. 2009 **Project Management Training**, 88 h, yourTarget, Graz.
Sep. - **Economy Competence Training for Academics**, 220 h, yourTarget, Graz.
Nov. 2008

Education

- Oct. 1998 – **PhD (Dr.techn.)**, *Institute of Theoretical and Computational Physics*, Graz University of Technology, On Magnetic Fields and MHD Equilibria in Stellarators.
Sep. 2007 Graduated with *summa cum laude*
- Oct. 1997 – **Master (Mag.rer.nat.)**, *Institute of Astronomy*, University of Graz, Global Modelling for Sunspot Numbers.
Jul. 1999 Graduated with *summa cum laude*

Oct. 1986 – **Master (Dipl.-Ing.)**, *Institute of Solid State Physics*, Graz University of Technology, Monte-Carlo Simulation of Time of Flight Spectra in a TOF-REMPI (Monte-Carlo Simulation von Flugzeitspektren in einem TOF-REMPI).
Aug. 1998
Graduated with *summa cum laude*

Languages

German **Native language**
English **Fluent**

Awards

Jul. 2002 **Christian-Doppler-Award 2001 of Salzburg**, *for the categories Chemistry/Mathematics/Physics for both the master theses Monte-Carlo Simulation of Time of Flight Spectra in a TOF-REMPI and Global Modelling for Sunspot Numbers (**Christian-Doppler-Preis 2001 des Landes Salzburg in der Sparte Chemie/Mathematik/Physik für die Diplomarbeiten Monte-Carlo Simulation von Flugzeitspektren in einem TOF-REMPI und Global Modelling for Sunspot Numbers**)*.

Scientific Stays

Sep. 2006 **Columbia University**, *New York, USA*.
Aug. 2006 **Max-Planck Institut für Plasmaphysik**, *Greifswald, Germany*.
Apr. 2005 **CIEMAT**, *Madrid, Spain*.

Computer Skills

Languages	Fortran 77/90, Python, C, Java, SQL, L ^A T _E X2 _ε	Packages, Tools	vtk, MPI, Matlab
Platforms	Linux, Windows	Databases	MySQL