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## PERSONAL INFORMATION

DATE OF BIRTH: May 9, 1974  
NATIONALITY: Danish  
CIVIL STATUS: Married, two children (born 2009 and 2011)

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## WORK EXPERIENCE

2011 – present      **Senior Research Engineer, Siemens A/S, Flow Instruments, Nordborg, Denmark**

- Flowmeter research and development
- Systems architecting

2009 – 2011      **Principal Scientist, ABB Switzerland Ltd., Corporate Research, Baden-Dättwil, Switzerland**

- Air-insulated medium-voltage load break switches
- Gas-insulated medium- and high-voltage circuit breakers
- Pressure and optical flow measurements in circuit breakers

2006 – 2008      **Scientist, ABB Switzerland Ltd., Corporate Research, Baden-Dättwil, Switzerland**

2002 – 2005      **Postdoctoral Associate, Massachusetts Institute of Technology (MIT), Cambridge, Massachusetts, USA**

- Fusion plasma turbulence measurements using phase-contrast imaging and reflectometry
- Control software and camera for lower hybrid current drive

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## EDUCATION

1999 – 2002      **Ph.D. in Physics** from the Niels Bohr Institute at the University of Copenhagen, Denmark. The title of my Ph.D. Thesis is: “Turbulence in Wendelstein 7-AS Plasmas Measured by Collective Light Scattering”  
[Included a total of two years work at the Institut für Plasmaphysik in Garching, Germany]

1996 – 1998      **M.Sc. in Physics** from the Niels Bohr Institute at the University of Copenhagen, Denmark. The title of my M.Sc. Thesis is: “Modelling of Neutron Emissivities at JET Using Charge Exchange Spectroscopic Data”  
[Included a one-year stay at the Culham Science Center in Culham, UK]

1993 – 1996      **B.Sc. in Physics** (Mathematics 2<sup>nd</sup> topic) from the Niels Bohr Institute at the University of Copenhagen, Denmark

1990 – 1993      **High School** focusing on Mathematics and Physics, Middelfart, Denmark

## FURTHER EDUCATION

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2011	<b>Opera-3d software training course</b> , Kidlington, England
2011	<b>Introduction to Ansys CFD with CFX</b> , Oslo, Norway
2009	<b>KARRASS Effective Negotiating</b> , Zürich, Switzerland
2007	<b>Introduction to Macroeconomics</b> , ETH Zürich, Switzerland
2007	<b>ABB Leadership Challenge Program</b> , Zürich, Switzerland
2006	<b>ABB Project Management Basics</b> , Ladenburg, Germany
2001	<b>16<sup>th</sup> NATO Advanced Study Institute School in Physics</b> , Geilo, Norway
1999	<b>4<sup>th</sup> Carolus Magnus Summer School on Plasma Physics</b> , Maastricht, The Netherlands
1997	<b>34<sup>th</sup> Culham Plasma Physics Summer School</b> , Culham, UK

## PUBLICATIONS IN REFEREED JOURNALS

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**First author:** 13 publications, see Appendix A  
**Co-author:** 21 publications, see Appendix B

## NON-REFEREED CONFERENCE PUBLICATIONS

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**First author:** 9 papers, 10 presentations, 10 posters  
**Co-author:** 15 papers, 14 presentations, 27 posters (partial list)

## PATENT

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**First author:** Circuit Breaker, publication number WO 2009/140999 A1

## TEACHING

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2000	<b>Teaching Assistant</b> during a one-semester course in Mathematics (“Matematik A”) for first year Chemistry students at the University of Copenhagen, Denmark
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## SUPERVISION

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2010	<b>Supervised</b> Christopher Kissing, graduate student at the Rheinische Fachhochschule Köln (3D turbulent mixing)
2004 – 2005	<b>Supervised</b> Arturo Dominguez, graduate student in the MIT Department of Physics (reflectometry)

## REFEREEING

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2010 – present	- Physics Letters A
2010 – present	- IEEE Transactions on Power Delivery
2009 – present	- Physics of Plasmas
2009 – present	- Plasma Physics and Controlled Fusion
2008 – present	- The Open Plasma Physics Journal
2007 – present	- IEEE Transactions on Plasma Science
2005 – present	- Nuclear Fusion
2004	- US Department of Energy

## EDITORIAL BOARD MEMBER

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2008 – present

The Open Plasma Physics Journal: <http://www.bentham.org/open/toppi/index.htm>

## LANGUAGES

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- Danish (mother tongue)
- English and German (fluently spoken and written)
- Swedish (spoken)
- French (basic knowledge)

## FURTHER KNOWLEDGE

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- Programming languages: Fortran, IDL, Matlab, MDS+, Pascal
- Simulation tools: Ansys CFX and Opera-3d (Vector Fields)
- Operating systems: Windows and Unix/Linux
- Experimental skills: Acousto-optic modulators, data acquisition (CAMAC, compact PCI, PCI), flowmeters, high speed cameras, infrared and visible lasers and detectors, microwave components, optics, pressure sensors

## AWARDS

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2009

**Best Paper Award**, ABB Switzerland Ltd., Corporate Research Center for the paper  
“Measured turbulent mixing in a small-scale circuit breaker model”

## REFERENCES

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ABB group leader (2006-2009)

Assistant Professor Christian Franck, ETH Zürich, Switzerland  
+41-44 632 47 62, [cfranck@ethz.ch](mailto:cfranck@ethz.ch)

Postdoctoral supervisor

Senior Research Scientist Earl S. Marmor, MIT Plasma Science and Fusion Center, USA  
+1-617 253 5455, [marmor@psfc.mit.edu](mailto:marmor@psfc.mit.edu)

Ph.D. supervisor

Professor Mark Saffman, University of Wisconsin – Madison, USA  
+1-608 265 5601, [msaffman@wisc.edu](mailto:msaffman@wisc.edu)

Ph.D. supervisor

Senior Scientist Poul K. Michelsen, Technical University of Denmark  
+45-4525 3312, [pomi@fysik.dtu.dk](mailto:pomi@fysik.dtu.dk)

## APPENDIX A - FIRST AUTHOR

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1. **Measured 3D turbulent mixing in a small-scale circuit breaker model**, N.T.Basse et al., Journal of Physics D: Applied Physics 44 (2011) 245201
2. **Measured turbulent mixing in a small-scale circuit breaker model**, N.P.T.Basse et al., Applied Optics 48 (2009) 6381-6391
3. **Quantitative analysis of gas circuit breaker physics through direct comparison of 3D simulations to experiment**, N.P.Basse et al., IEEE Transactions on Plasma Science 36 (2008) 2566-2571
4. **A study of multiscale density fluctuation measurements**, N.P.Basse, IEEE Transactions on Plasma Science 36 (2008) 458-461
5. **Diagnostic systems on Alcator C-Mod**, N.P.Basse et al., Fusion Science and Technology 51 (2007) 476-507
6. **Density fluctuations on mm and Mpc scales**, N.P.Basse, Physics Letters A 340 (2005) 456-460
7. **Characterization of core and edge turbulence in L- and enhanced D-alpha H-mode Alcator C-Mod plasmas**, N.P.Basse et al., Physics of Plasmas 12 (2005) 052512 (14 pages)
8. **Small-angle scattering theory revisited: Photocurrent and spatial localization**, N.P.Basse et al., Physica Scripta 71 (2005) 280-292
9. **Study of intermittent small-scale turbulence in Wendelstein 7-AS plasmas during controlled confinement transitions**, N.P.Basse et al., Physics of Plasmas 12 (2005) 012507 (11 pages)
10. **Characterization of turbulence in L- and ELM-free H-mode Wendelstein 7-AS plasmas**, N.P.Basse et al., Plasma Physics and Controlled Fusion 45 (2003) 439-453
11. **Turbulence at the transition to the high density H-mode in Wendelstein 7-AS plasmas**, N.P.Basse et al., Nuclear Fusion 43 (2003) 40-48
12. **Spatial distribution of turbulence in the Wendelstein 7-AS stellarator**, N.P.Basse et al., Plasma Sources Science and Technology 11 (2002) A138-A142
13. **Low- and high-mode separation of short wavelength turbulence in dithering Wendelstein 7-AS plasmas**, N.P.Basse et al., Physics of Plasmas 9 (2002) 3035-3049

1. **Focused shadowgraphy in the heating volume of a high-voltage gas circuit breaker**, R.Wiget, F.Lundqvist and N.T.Basse, IEEE Transactions on Plasma Science 39 (2011) 2852-2853
2. **Arc-induced turbulent mixing in an SF<sub>6</sub> circuit breaker model**, R.Bini, N.T.Basse and M.Seeger, Journal of Physics D: Applied Physics 44 (2011) 025203
3. **Overview of the Alcator C-Mod research programme**, S.Scott, A.Bader, M.Bakhtiari, N.Basse et al., Nuclear Fusion 47 (2007) S598-S607
4. **Energetic particle physics studies on Alcator C-Mod**, J.A.Snipes, N.Basse et al., Fusion Science and Technology 51 (2007) 437-450
5. **Internal transport barriers in Alcator C-Mod**, C.L.Fiore, D.R. Ernst, J. E. Rice, K. Zhurovich, N. Basse et al., Fusion Science and Technology 51 (2007) 303-316
6. **Confinement and transport research in Alcator C-Mod**, M.Greenwald, N.Basse et al., Fusion Science and Technology 51 (2007) 266-287
7. **Phase contrast imaging of waves and instabilities in high temperature magnetized fusion plasmas**, M.Porkolab, J.C.Rost, N.Basse et al., IEEE Transactions on Plasma Science 34 (2006) 229-234
8. **Comparisons of small ELM H-mode regimes on the Alcator C-Mod and JFT-2M tokamaks**, A.E.Hubbard, K.Kamiya, N.Oyama, N.Basse et al., Plasma Physics and Controlled Fusion 48 (2006) A121-A129
9. **Transport phenomena in the edge of Alcator C-Mod plasmas**, J.L.Terry, N.P.Basse et al., Nuclear Fusion 45 (2005) 1321-1327
10. **Overview of the Alcator C-Mod program**, M.Greenwald, D.Andelin, N.Basse et al., Nuclear Fusion 45 (2005) S109-S117
11. **Observation and modelling of ion cyclotron range of frequencies waves in the mode conversion region of Alcator C-Mod**, Y.Lin, S.Wukitch, A.Parisot, J.C.Wright, N.Basse et al., Plasma Physics and Controlled Fusion 47 (2005) 1207-1228
12. **W7-AS: One step of the Wendelstein stellarator line**, F.Wagner, S.Bäumel, J.Baldzuhn, N.Basse et al., Physics of Plasmas 12 (2005) 072509 (22 pages)
13. **Ion cyclotron range of frequency mode conversion physics in Alcator C-Mod: Experimental measurements and modeling**, S.J.Wukitch, Y.Lin, A.Parisot, J.C.Wright, P.T.Bonoli, M.Porkolab, N.Basse et al., Physics of Plasmas 12 (2005) 056104 (8 pages)
14. **Active and fast particle driven Alfvén eigenmodes in Alcator C-Mod**, J.A.Snipes, N.Basse et al., Physics of Plasmas 12 (2005) 056102 (8 pages)
15. **Toroidal rotation and momentum transport in Alcator C-Mod plasmas with no momentum input**, J.E.Rice, W.D.Lee, E.S.Marmor, N.P.Basse et al., Physics of Plasmas 11 (2004) 2427-2432
16. **Investigation of ion cyclotron range of frequencies mode conversion at the ion-ion hybrid layer in Alcator C-Mod**, Y.Lin, S.Wukitch, P.Bonoli, E.Nelson-Melby, M.Porkolab, J.C.Wright, N.Basse et al., Physics of Plasmas 11 (2004) 2466-2472
17. **Local threshold conditions and fast transition dynamics of the L-H transition in Alcator C-Mod**, A.E.Hubbard, B.A.Carreras, N.P.Basse et al., Plasma Physics and Controlled Fusion 46 (2004) A95-A104
18. **Changes in density fluctuations associated with confinement transitions close to a rational edge rotational transform in the W7-AS stellarator**, S.Zoletnik, N.P.Basse et al., Plasma Physics and Controlled Fusion 44 (2002) 1581-1607
19. **CO<sub>2</sub> laser based two-volume collective scattering instrument for spatially localized turbulence measurements**, M.Saffman, S.Zoletnik, N.P.Basse et al., Review of Scientific Instruments 72 (2001) 2579-2592
20. **Trace tritium and the H-mode density limit**, G.F.Matthews, K.-D.Zastrow, P.Andrew, N.P.Basse et al., Journal of Nuclear Materials 266-269 (1999) 1134-1138
21. **Neutron profile measurements for trace tritium experiments**, M.J.Loughlin, N.Watkins, J.M.Adams, N.Basse et al., Review of Scientific Instruments 70 (1999) 1123-1125