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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

- 2016 – present      **Computational Fluid Dynamics (CFD) Expert, Danfoss A/S, Refrigeration and Air Conditioning, Nordborg, Denmark**
- Valve research and development:
    - CFD simulations
    - Acoustic measurements
- 2011 – 2016      **Senior Research Engineer, Siemens A/S, Flow Instruments, Sønderborg, Denmark**
- Flowmeter research and development:
    - Technology project management
    - Coriolis and electromagnetic flowmeters
- 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 Centre 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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2017	<b>ANSYS Acoustics</b> , Nordborg, Denmark
2016	<b>ANSYS Mechanical</b> , Sønderborg, Denmark
2014	<b>Personal Performance</b> , Nordborg, Denmark
2013	<b>Multiphase Flow Modeling in ANSYS CFX</b> , Aarhus, Denmark
2012 – 2013	<b>Siemens People and Business Management 3 (PBM3)</b> , Billund, Denmark
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, England

## PUBLICATIONS IN REFEREED JOURNALS

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**First author:** 16 publications, see Appendix A  
**Co-author:** 23 publications, see Appendix B

## NON-REFEREED CONFERENCE PUBLICATIONS

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**First author:** 9 papers, 10 presentations, 10 posters  
**Co-author:** 16 papers, 15 presentations, 27 posters (partial list)

## PATENTS

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**Gas insulated circuit breaker**, publication number EP 2 455 957 A1  
**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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2014 – 2016	Matej Simurda, Ph.D. student at the University of Southern Denmark “Mathematical Modeling of Ultrasound Propagation in Multi-phase Flow”
2016	Michael Leth-Nielsen, M.Sc. student at the University of Southern Denmark “Simulations of AC magnetic fields in flowmeters”
2015	Janna Hofmann, M.Sc. student at Karlsruhe Institute of Technology “Upgrade of a LabVIEW control system of a 3D measuring robot to analyze the magnetic field inside an electromagnetic flowmeter”
2015	Francesco Russo, intern at TU Delft CFD simulations of incompressible and compressible flow
2015	Dionysios-Konstantinos Neofytos, M.Sc. student at the University of Southern Denmark “High speed gas flow measurements and analysis in Coriolis flow meters”
2014	Darlene O’Carroll, intern at University of Limerick Competitor benchmarking
2014	Brice Rogié, M.Sc. student at INSA Toulouse “Water Hammer Effect on Coriolis Flowmeter – Pressure Wave Propagation”
2014	Yu Lin, M.Sc. student at the University of Southern Denmark “Numerical Modeling of Electromagnetic Flowmeter”
2014	Katrine A. Juhl, M.Sc. student at Aalborg University “Aerated Flow Measurement and Modelling of a Coriolis Flowmeter”
2013	Leah Hormann, M.Sc. student at the Mannheim University of Applied Sciences “Computational Fluid Dynamics Simulations of Electromagnetic Flowmeters”
2013	Matej Simurda, M.Sc. student at the University of Southern Denmark “Two Dimensional Analysis of Clamp-On Ultrasonic Flowmeters”
2012	Elvar Ásmundsson and Mikkel H. Callesen, B.Sc. students at the University of Southern Denmark EA: “Turbulent Flow in Straight Pipes” MHC: “Pressure Loss in Pipes”
2010	Christopher Kissing, M.Sc. student at the Cologne University of Applied Sciences “Untersuchung von dreidimensionalen Strömungen in einem kleinen Schaltermodell”
2004 – 2005	Arturo Dominguez, Ph.D. student in the MIT Department of Physics “Study of Density Fluctuations and Particle Transport at the Edge of I-Mode Plasmas”

## REFEREEING

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2015 – present	- Measurement Science and Technology
2014 – present	- Flow Measurement and Instrumentation
2012 – present	- Journal of Physics D: Applied Physics
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

## STANDARDISATION WORK

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2015 – 2016	Member of Danish Standards Participation in ISO/TC 30/SC 5/WG 5 to write new standard: “Measurement of fluid flow in closed conduits – Guidance for the use of electromagnetic flowmeters for conductive liquids”
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## 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 CFD/Mechanical, STAR-CCM+ and Cobham Opera-3d (Vector Fields)
- Operating systems: Windows and Unix/Linux
- Signal processing
- Experimental skills: Acousto-optic modulators, data acquisition (CAMAC, compact PCI, PCI), flowmeters, high speed cameras, infrared and visible lasers and detectors, microphones, microwave components, optics, pressure sensors

## REFERENCES

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Available upon request

## APPENDIX A - FIRST AUTHOR

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1. **Turbulence intensity and the friction factor for smooth- and rough-wall pipe flow**, N.T.Basse, *Fluids* 2 (2017) 30
2. **Coriolis flowmeter damping for two-phase flow due to decoupling**, N.T.Basse, *Flow Measurement and Instrumentation* 52 (2016) 40-52
3. **A review of the theory of Coriolis flowmeter measurement errors due to entrained particles**, N.T.Basse, *Flow Measurement and Instrumentation* 37 (2014) 107-118
4. **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
5. **Measured turbulent mixing in a small-scale circuit breaker model**, N.P.T.Basse et al., *Applied Optics* 48 (2009) 6381-6391
6. **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
7. **A study of multiscale density fluctuation measurements**, N.P.Basse, *IEEE Transactions on Plasma Science* 36 (2008) 458-461
8. **Diagnostic systems on Alcator C-Mod**, N.P.Basse et al., *Fusion Science and Technology* 51 (2007) 476-507
9. **Density fluctuations on mm and Mpc scales**, N.P.Basse, *Physics Letters A* 340 (2005) 456-460
10. **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)
11. **Small-angle scattering theory revisited: Photocurrent and spatial localization**, N.P.Basse et al., *Physica Scripta* 71 (2005) 280-292
12. **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)
13. **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
14. **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
15. **Spatial distribution of turbulence in the Wendelstein 7-AS stellarator**, N.P.Basse et al., *Plasma Sources Science and Technology* 11 (2002) A138-A142
16. **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

## APPENDIX B - CO-AUTHOR

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1. **A Fourier collocation approach for transit-time ultrasonic flowmeter under multi-phase flow**, M.Simurda, B.Lassen, L.Duggen and N.T.Basse, *Journal of Computational Acoustics* 2 (2017) ?-?
2. **Scaling of turbulence intensity for low-speed flow in smooth pipes**, F.Russo and N.T.Basse, *Flow Measurement and Instrumentation* 52 (2016) 101-114
3. **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
4. **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
5. **Overview of the Alcator C-Mod research programme**, S.Scott, A.Bader, M.Bakhtiari, N.Basse et al., *Nuclear Fusion* 47 (2007) S598-S607
6. **Energetic particle physics studies on Alcator C-Mod**, J.A.Snipes, N.Basse et al., *Fusion Science and Technology* 51 (2007) 437-450
7. **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
8. **Confinement and transport research in Alcator C-Mod**, M.Greenwald, N.Basse et al., *Fusion Science and Technology* 51 (2007) 266-287
9. **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
10. **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
11. **Transport phenomena in the edge of Alcator C-Mod plasmas**, J.L.Terry, N.P.Basse et al., *Nuclear Fusion* 45 (2005) 1321-1327
12. **Overview of the Alcator C-Mod program**, M.Greenwald, D.Andelin, N.Basse et al., *Nuclear Fusion* 45 (2005) S109-S117
13. **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
14. **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)
15. **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)
16. **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)
17. **Toroidal rotation and momentum transport in Alcator C-Mod plasmas with no momentum input**, J.E.Rice, W.D.Lee, E.S.Marmar, N.P.Basse et al., *Physics of Plasmas* 11 (2004) 2427-2432
18. **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
19. **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
20. **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
21. **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
22. **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
23. **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