

# Curriculum vitae

## Thomas Andersen

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### Personalia

Thomas Andersen  
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### About myself

Generally, I am an outgoing guy who is fun and easy to be around. I enjoy attention to details without losing focus on the bigger picture in my work life as well as in my personal life.

In my spare time, I enjoy exercising in almost any form. Especially my race bike is used in the summer time when the weather allows for it. This kind of exercise suits me not only because of the physical challenge but also allows me to relax and think of something else.

Besides exercising I enjoy traveling to both experience and discover new exciting places and cultures but also to challenge myself physically and mentally in new ways. Especially during the last years I have combined cultural experiences with physical and mental challenges and have in this connection trekked to Macchu Picchu in Peru and climbed Mount Kilimanjaro in Tanzania.

In my private life, I live together with my girlfriend, Kristine, and have done so during the last 10 years of my life.

### Previous employments

*Scientific Floor Manager* 2011–  
**CINF, Technical University of Denmark** Kgs. Lyngby

*Postdoctoral researcher* 2011–2011  
**CINF, Technical University of Denmark** Kgs. Lyngby

### Education

*Ph.D. in physics* 2011  
**CINF, Technical University of Denmark** Kgs. Lyngby

My thesis can be downloaded at [www.thomasandersen.dk/pdf/thesis.pdf](http://www.thomasandersen.dk/pdf/thesis.pdf)

*M.Sc. in Engineering, Physics and Technology* 2007  
*with specialty in optics*  
**IFK, University of Southern Denmark** Odense  
The thesis is classified and hence not available to the public.

*Mathematical student* 2002  
**Kolding Amtsgymnasium** Kolding

### Projects

*Scientific Floor Manager* 2011–  
**CINF, Technical University of Denmark** Kgs. Lyngby

Responsible for several experimental setups and the daily operation of a scientific laboratory. As Scientific Floor Manager I am also used as a sparring partner for users at setups not operated by me when it comes to problem solving, testing and design decisions. Furthermore, I am responsible for streamlining software used to interface equipment and collect data along with maintenance of our database used to store experimental data.

*Postdoctoral researcher* 2011–2011  
**CINF, Technical University of Denmark** Kgs. Lyngby  
Postdoctoral scientist at the Technical University of Denmark. Here I have been working with several experimental setups used for research within heterogeneous catalysis e.g. a time-of-flight equipment for mass distribution analysis of nanoparticles and gases and the buildup of a new microreactor system for testing new catalysts. As a part of this work, I have designed, built, coordinated and performed experiments on this platform along with maintenance and installation of upgrades including interfacing to computer by software written in LabView.

*Ph.D. study* 2007–2011  
**CINF, Technical University of Denmark** Kgs. Lyngby  
Ph.D. study performed under supervision of Professor Ib Chorkendorff, Research professor Mogens B. Mogensen and Senior Scientist Karin V. Hansen. The project, which was a part of SERC (<http://www.serc.dk>) examined the role of impurities on the electrolyte/anode interface in solid oxide cells for electrochemical losses in the system. Throughout the project I have designed, tested and used equipment for characterization of surfaces. Furthermore, I gained experience in running several tracks simultaneously and planning and executing my research.

*Master thesis* 2006–2007  
**Danfysik Technology Center** Århus  
Master thesis at Danfysik Technology Center in Århus with project manager Dr.rer.nat Arnd Baurichter as supervisor. The project concerned the development of a new, better and cheaper profile detector for ion beams used in a synchrotron at particle therapy facilities. As part of the project I have designed and tested a promising profile detector design at Rigshospitalet's cyclotron. The thesis was a part of the Danish National Advanced Technology Foundation supported InnovAcc project (<http://www.innovacc.dk>)

## Other work

*Technical coordinator* 2006  
**Europahøringen** Odense  
Responsible for the coordination of technical equipment during Europahøringen at the University of Southern Denmark in 2006.

*Measurements of linear accelerators* 2007  
**Odense University hospital** Odense  
A week long stay on Odense University hospital, section R, where I worked with a physicist and learned about measurement techniques on linear accelerators and dose planning for radiation therapy for cancer treatment.

## Competences

### Computer and programming

I have a general interest in and flair for computers both on the software and hardware side. Through the last ten years I have worked with assembly and disassembly with computers, Microsoft Windows with accompanying Office package since Windows 98 and onwards and different Linux distributions (primarily Ubuntu and Fedora). I am hence used to working around and on computers across several platforms.

For programming my own website (<http://www.thomasandersen.dk>) and the design and implementation of several other sites I have programmed in HTML, CSS and PHP. Besides these languages I have also received training in both C++, Java and LabView. During the last years I have especially used LabView for interfacing experimental equipment and have extensive experience in this environment.

Specifically, I have coauthored software where LabView with MySQL and PHP is used to program a data acquisition and storage system for logging experimental data. Here the experimental equipment is interfaced by LabView from where the data in real time is stored in the MySQL database which is used as a central point of storage enabling easy backup solutions. For visualization of the data PHP and Python code has been written which allows for easy plotting, treatment and export of data.

*For a demonstration of the system please contact me.*

For the majority of my written assignments during the last 10 years, I have used L<sup>A</sup>T<sub>E</sub>X for typesetting and formatting (including this CV) and have large experience with this environment.

Through my research I have been used to analyzing large amounts of data. For this purpose I have typically used Mathematica, MatLab, Origin or SciDavis. These program suites have been used to treat and fit data, perform statistical analyses and perform simulations of physical processes by code written by me. Furthermore, I have performed simulations in COMSOL Multiphysics and also have knowledge of this software package. Through the knowledge of these programs and their individual syntax I am also able to learn new programs and languages quickly.

**OS and office suites experience:** Windows, Office, Linux (Ubuntu, Fedora), LibreOffice  
**Programming experience:** Mathematica, MatLab, COMSOL Multiphysics, C++, Java, PHP, LabView, HTML, CSS, L<sup>A</sup>T<sub>E</sub>X

### **Experimental work**

During my Ph.D. study I have been in charge of a ultra high vacuum setup. The equipment was used for surface characterization by various techniques and gas analysis by mass spectrometry. I am hence used to working on and around experimental setups with respect to both service, maintenance, development (both regarding software and hardware) and have large experience with laboratory work.

During my employment as a postdoctoral scientist at the Technical University of Denmark I have built and tested equipment for research within heterogeneous catalysis. As an example I have been involved in the development of a time of flight chamber used for characterization of nanoparticles and a microreactor platform for testing new catalysts. In both cases I have been involved in the planning and building phase as well as verification and testing.

**Material characterization techniques:** XPS, AES, SEM, EDX, XRD, XRF, mass spectrometry (TOF and QMS)

### **Teaching experience**

During my employment at the Technical University of Denmark I have supervised experimental surface physics exercises for three years and been a supervisor on consultant projects.

### **Languages**

I am born and raised on Fyn which means I have Danish as native tongue. I have through my employment at the Technical University of Denmark worked in an international environment which means I have used English for both technical meetings and social gatherings through several years. I can, furthermore, if necessary, speak some Swedish after a two year stay. Besides these languages I have received teaching in German for 4 years and is able to enter light conversations.

**Languages:** Danish, English, Swedish, German.

### **Publications**

*T. Andersen et al.*

2011

***Solid State Ionics***

DOI: 10.1016/j.ssi.2011.02.024

Electrochemical removal of segregated silicon dioxide impurities from yttria stabilized zirconia surfaces at elevated temperatures

*T. Andersen et al.*

2011

***Solid State Ionics***

DOI: 10.1016/j.ssi.2011.02.025

Strontium zirconate as silicon and aluminium scavenger in yttria stabilized zirconia

**Conferences, meetings etc.**

I have participated at several conferences with posters at home as well as abroad. I have at meetings and conferences given presentations in Danish as well as English and consider myself a trained communicator.