
CURRICULUM VITAE

Lasse Røngaard Clausen
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EDUCATION

The Technical University of Denmark (DTU), Kgs. Lyngby

PhD student

2007 – Nov. 14 2010

Title: "Design of novel DME/methanol synthesis plants based on gasification of biomass".

Description: Design and analysis of energy plant models for production of DME (Dimethyl ether) or methanol by zero-dimensional modeling in the component based thermodynamic simulation tools Aspen Plus and DNA. The objective of the project is to: 1. Design plants with high overall energy and exergy efficiency by optimizing the plant design and co-producing electricity and heat. 2. Design plants with low CO₂ emissions (incorporating carbon capture and storage). 3. Improve the DME/methanol yield per biomass input. 4. Integrate surplus electricity from renewables in the production of DME/methanol. Supervisor: Associate professor Brian Elmegaard, MEK, DTU.

Note: The PhD thesis has been handed in and a preliminary recommendation has been granted from the examiners. The defense is 28/9-2011.

Master of Science in engineering (energy)

2001 – 2007

Average grade: A (old Danish scale: 11.0, new Danish scale: 11.4).

See appendix or the link below for all grades.

<https://www.campusnet.dtu.dk/cnnet/Grades/Public.aspx?Id=7J2C4786K3>

Important projects:

Master thesis:

1/3-2006 - 2/5-2007

Grade: A (11)

"Design and modeling of a methanol plant for the REtrol vision"

In cooperation with ELSAM A/S (now DONG Energy A/S) and inspired by ELSAM's REtrol vision a methanol plant was designed, modeled and analyzed with the thermodynamic simulation tool DNA. A thermo-economic analysis was done.

Supervisors: Professor Niels Houbak and associate professor Brian Elmegaard, MEK, DTU.

Ecocar project:

1/9-2004 – 1/9-2005

Grade: passed

Design and construction of the powertrain for the hydrogen vehicle DTU•Dynamo.

Design, construction, testing and operation of the powertrain for the first hydrogen vehicle from DTU. Participation in Shell Eco marathon in France and England (fuel economy races) where the car set the world record for Urban Concept vehicles by having a fuel economy that corresponds to 671 km/liter-gasoline.

Supervisor: Associate professor Jesper Schramm, MEK, DTU

Bachelor project:

1/2-2004 - 30/8-2004

Grade: A (11)

"Gasification gas in gas turbines"

A gas turbine burner was operated on synthetic gasification gas and the results were compared with operation on natural gas. The burner was borrowed from the company DGC A/S.

Supervisors: Professor Bjørn Qvale and associate professor Brian Elmegaard, MEK, DTU.

Project:

1/2-2003 - 1/6-2003

Grade: A (11)

"DC-characterization of Solid Oxide Fuel Cells"

Test of fuel cells in cooperation with Risø-DTU.

Supervisors: Professor Niels Houbak, MEK, DTU and post-doc Rasmus Barfod, Risø.

Stenløse High School, Stenløse

High School Diploma (mathematical)

1998 - 2001

Average grade: B+ (old Danish scale: 9.8)

EXTERNAL FUNDED PROJECTS DURING PHD

- Preliminary investigation of advanced energy systems utilizing biomass wastes from agriculture for production of electricity, heat, biocoke and fertilizer (3 months). Project partner: Bregentved estate (Bregentved gods).
 - Modeling of biofuel synthesis plants based on the Two-Stage Gasifier from DTU (3 months). Project partner: Biomass Gasification Group at the Biosystems Division at Risø DTU.
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TEACHING EXPERIENCE

- Primary lecturer in the course 41431 "Applied Thermodynamics" (10 ECTS) **Spring 2011**
 - Assistant lecturer (hjælpelærer) in the course "Thermodynamics". Lecturer: Associate professor Johannes Skov, Physics, DTU. Number of hours: 186. **Spring and fall 2003**
 - Assistant lecturer (hjælpelærer) in the course "Mechanics". Lecturer: Associate professor Erik Both, Physics, DTU. Number of hours: 129. **Fall 2002**
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PATENT APPLICATIONS

- Main inventor on patent applied invention developed for the hydrogen vehicle DTU•Dynamo, concerning a hydrogen system for low temperature fuel cells. The 3 co-inventors were also students on the ecar project. The patent application was submitted to the European and American patent authorities December 2005 by DTU. The patent application entailed presentation of the invention in a number of forums including some Danish newspapers and on national Danish TV. The patent application was dropped by DTU because it was estimated that only the method could be patented after discovering a similar system layout in the patent literature.
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AWARDS

- The European Talent Award for Innovative Energy Systems, 2008. Awarded by the European Foundation for Power Engineering (EFPE) in Milan, Italy for master thesis project. Award of 1000 €.
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PRESENTATIONS

- Oral presentation of the paper: "Zero-dimensional model of a dimethyl ether (DME) plant based on gasification of torrefied biomass" at the SIMS 50 conference on Modelling and Simulation of Energy Technology, 2009.
 - Oral presentation of master thesis at the ceremony for The European Talent Award for Innovative Energy Systems in Milan, Italy, 2008.
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PROJECT SUPERVISION

- Co-supervisor on master thesis project "Energy savings for brewing process" by Martin Herse.
- Co-supervisor on bachelor project "Modeling of Hadsund biomass gasification plant" by Robert Klein and Lars Bennov.
- Co-supervisor on master thesis project "Process integration in a pulp and paper mill" by Morten Stryg.
- Co-supervisor on master thesis project "Energy analysis and optimization of milk protein production" by Peder Fridolin Müller Holm.

INTERNATIONAL EXPERIENCE

- Three months stay at the Colorado School of Mines, Division of Engineering (Colorado, USA) in 2008. Working on modeling of biofuel plants under the supervision of assistant professor Robert J Braun.

WORK EXPERIENCE

<i>The Technical University of Denmark (DTU), Kgs. Lyngby</i> Assistant professor at Section Thermal Energy Systems	Aug. 1 2011 – present
Post-doc at Section Thermal Energy Systems	Nov. 15 2010 – July 31 2011
PhD student at Section Thermal Energy Systems	2007-2010
Assistant lecturer (hjælpelærer) in the course Thermodynamics (details under "Teaching Experience")	Spring and Fall 2003
<i>Risø, Roskilde</i> Data processing of test data from the SOFC program at Risø. Under the supervision of post-doc Rasmus Barfod (summer job).	2003
<i>The Technical University of Denmark (DTU), Kgs. Lyngby</i> Assistant lecturer (hjælpelærer) in the course Mechanics (details under "Teaching Experience")	Fall 2002
<i>PFA, Copenhagen</i> Office clerk (summer job)	2002
<i>NETTO, Stenløse</i> Youth worker and checkout assistant	1998 – 2001
<i>STK – Stenløse Tennis Club, Stenløse</i> Tennis coach	1996 – 1997

IT CAPABILITIES

- Super user and code developer of DNA (Dynamic Network Analysis) - a component based thermodynamic simulation tool for simulation of energy systems (a non-commercial tool developed at the Section Thermal Energy Systems at DTU).
- Very experienced in Aspen Plus - a commercial component based thermodynamic simulation tool for simulation of energy systems.
- Very experienced in EES (Engineering Equation Solver).
- Experienced in Matlab
- Experienced in programming languages such as Fortran, C and Perl
- Experienced in the Microsoft Office-package

LANGUAGES

- Danish – mother tongue
- English – fluent in writing and conversation
- German – basic writing and conversation

HOBBIES

- Climbing and jogging.

REFERENCES

- Associate professor Brian Elmegaard, MEK, DTU
Supervisor on PhD, master thesis project and bachelor project.
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- Assistant professor Robert J Braun, Colorado School of Mines, USA.
Supervisor during stay at Colorado School of Mines in 2008.
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