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# Curriculum vitae

Marcus Aldén (540425-5613)

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Name: Lars Eric Marcus Aldén

Born: April 25, 1954

Citizenship: Swedish

Civil Status: Married to Monica b Gustafsson, Children: Linnéa b 1985  
Martina b 1988

Military Service: T2 Skövde 1973-74

Education: High School, 3 year Science branch, Alströmerskolan,  
Alingsås, 1973

M.S. Engineering Physics, Chalmers University of  
Technology, 1978

Ph.D. Lund Institute of Technology, 1983  
Title: "Applications of Laser Techniques for  
Combustion Studies"

Docentship: Lund Institute of Technology, 1985

Service: 1978-1980 Research assistant, Chalmers Univ of Techn  
1978-79 Six months stay at General Electric Research and  
Development Centre in Schenectady, USA, working with  
combustion diagnostics using laser techniques.

1978-1983 Research assistant, Lund Inst of Techn (LTH)

1983-1985 Research Engineer, Lund Inst of Techn

1985-1987 Docentposition (Sponsored by STU), LTH

1987-1991 University lecturer, Lund Inst of Techn

1989-2004 Director for the Lund University Combustion Centre, LUCC,  
at LTH

1992- Professor and Head of Division of Combustion Physics, Lund  
Inst of Techn.

1997- Programdirector for the Swedish national Centre of  
Excellence in Combustion Science and Technology, CECOST

1999-2001 Deputy head (prefekt) at the Department of Physics, Lund  
University

2000-2004 Responsible for the European Marie Curie Training Site  
within LUCC

2002- Responsible for the Lund European Large Scale Facility  
within LUCC

2005- Visiting professor at Technical University Eindhoven.

Field of research: The main part of the scientific activities has been in the field of development and application of advanced optical (laser) techniques for characterisation of flow, combustion and other high temperature phenomena. Included in these activities are various linear and non-linear laser techniques, e.g Raman/Rayleigh scattering, laser-induced fluorescence, CARS, DFWM and polarization spectroscopy for species detection, temperature- and velocity-measurements. Other optical activities have been directed towards emission spectroscopy, LIDAR and Mie scattering. In the combustion field the interest has been to initiate activities in chemical kinetics, turbulent reacting flow as well as studies of ignition phenomena. In the fields above 33 PhD thesis and 18 Tek. Lic. thesis have been produced since 1991. In all of these activities a very close collaboration and cooperation with national and international industries have been established. Besides the pure scientific work, considerable effort has been made in establishing cross-disciplinary co-operations in order to strengthen the position of the local and national combustion activities. Examples of this are the various Centre organisations created; The Combustion Centre, the Centre of Competence, the Centre financed by the Strategic Foundation; CECOST. Dedicated work has also been made in establishing the Scandinavian-Nordic Section within the Combustion Institute in the late nineties.

#### **Participation in committees, conference org, etc.**

Arranged 1986 the European CARS Workshop in Lund.

During 1986-1996 member of the steering committee for the European CARS workshops and during 1992-94 its chairman.

Participated in the organizing committee for the IEA Task Leaders Meeting in Sweden 1989

Participated in the steering committee for the National conference "Förbränningsteknisk Projektexposé" FÖRPEX, Lund 1989.

During 1989-91 member of the STU/SEV advisory group "GRUFF" for Fundamental Combustion Research in Sweden

Member of the Technical Program Committee for the "Laser Applications to Chemical Analyses", LACA III, in Utah 1992

Member of the Program Subcommittee for the Int Comb Symp in Sydney 1992, Irvine 1994, Naples 1996, Boulder 1998

Member of the Program/Organisation Committee for the Joint Swedish-French-Italian meeting within the Combustion Institute, Capri 1992

During 1991-93 Swedish Scientific delegate in the IEA Executive Committee on Combustion.

Member of the Board of the Physics Department, LU, from 1992-2002

Member of the organisation committee for FÖRPEX 1992.

Since 1992 member of the Board of the Swedish Section of the Combustion Institute

During 1993-1996 member of the Working group at the Swedish Research Council for Engineering Sciences (TFR) responsible for financing scientific proposals in the area of Engineering Physics.

During 1994-1997 Chairman of the “Docentnämnd” at the School of Engineering Physics, LTH

Member of the Program/Organisation Committee for the Joint Portuguese-Spanish-British-Swedish meeting within the Combustion Institute, Madeira 1996

Board member of the Centre of Competence “Combustion Engines” at Chalmers University of Technology 1995-1998

Board member of the Centre of Competence “Combustion processes” at LTH since 1995

During 1997-2000 responsible teacher for the Student Travelling Scholarship evaluation at LTH

Member of the Technical Program Committee for the CLEO Europe, Glasgow 1998

Since 1998 member of the Combustion Institute Committee

During 1999-2000 member of the Energy committee for Evaluation of proposals to the Natural Science Foundation, NFR, and the Swedish Research Council for Engineering Sciences, TFR.

Appointed Chairman of the Scandinavian - Nordic section of the Combustion Institute during 1999 - 2007

Member of the International Scientific Committee of the 5<sup>th</sup> European Conference on Industrial Furnaces and Boilers, in 2000

Member of the CLEO 2004 Subcommittee on Active Optical Sensing

Member of the International Scientific Committee of the 6<sup>th</sup> European Conference on Industrial Furnaces and Boilers, in 2001

Colloquium Co-Chair for the colloquium: “*High Intensity Combustion, Gas Turbines, Practical and Innovative Systems*” at the Twenty-Eighth Symposium on Combustion, 2000.

Colloquium Co-Chair for the colloquium : “*Internal Combustion Engines (e.g. Piston Engines, Gas Turbines, Rockets)*” at the Twenty-Ninth Symposium on Combustion, 2002

During 2001-2002 appointed Chairman of the Energy Committee for Evaluation of proposals to the Swedish Research Council.

From 2002 member of the Board of Directors within the Combustion Institute.

From 2003 elected member of the editorial Board of *Combustion and Flame*

Member of the Organisation Committee of the joint Swedish-Italian meeting within the Combustion Institute, Ischia 2003.

Since 2003 member of the Steering Committee IVA Syd, (IVA = Royal Swedish Academy of Engineering Sciences)

2003 Chairman of the Gordon Conference in *Laser diagnostic in combustion*, in Oxford 2003

Chairman of the local organisation committee of the Fifth symposium: Towards Clean Diesel Engines, Lund June 2005.

Program Co-Chair (together with Prof. Steve Pope) for the 31<sup>st</sup> International Combustion Institute meeting in Heidelberg 2006.

### **Scientific achievements:**

Have co-authored 190 regular papers and 182 conference contributions, most with referee system and in the field of optical diagnostics of combustion and high temperature systems.

Have since the mid eighties given about thirty-five invited talks at international conferences and work shops.

### **Awards:**

Was in 1984 together with Prof Bengt Kasemo given ASEA Gunnar Engström Energy award.

Was in 1999 together with Prof Sune Svanberg given the Akzo Nobel Science Award Sweden, evaluated by IVA.

Was in 2007 awarded the Håkan Friesinger VOLVO Transportation Award

### **Specific tasks:**

Was in 1998 by Department of Energy, invited external reviewer of the combustion research at Sandia National Laboratories, USA.

Faculty opponent at PhD defences at Chalmers University of Technology 1998, and Trondheim University, 1998, Technical University of Eindhoven 2007.

External evaluator for a Professorship in Trondheim, 1998.

External evaluator for a Professorship in Luleå Technical University, 2004

Reviewer for: Applied Optics, Applied Physics B, Spectrochimica Acta B, Optics Letter, Combustion and Flame, Comb. Science and Techn., Int. Symp. on Combustion, AIAA. J.

External reviewer of national proposals and personal appointments from England, Germany, USA, Australia, Austria and Switzerland.

Reviewer of the combustion activities within European Space Agency, ESA, April 2004

Invited for evaluation of the Basic Science Activities, within Sandia Natl. Labs, March 2004

**Miscellaneous:**

Have (together with A Burden) arranged a national Swedish PhD course in combustion physics, 1987.

Was 1994 initiator, coordinator and wrote the proposal for the initiation of the centre of Competence “Combustion processes” at LTH.

Was by the Foundation of Strategic Research in 1995 given the task to coordinate a national proposal (involving 14 professors from LTH, CTH and KTH) in the field of Combustion Science and Technology. (This led to the initiation of the CECOST program)

Was in a popular science magazine (Teknik & Vetenskap 1/98) elected as among the seven most successful scientists in Sweden in Natural Sciences and Technology.

One Patent: “Metallurgisk styrmetod” 8703233-0, based on using emission spectroscopy for regulation of metallurgical processes.

Since 1999 member of the Royal Swedish Academy of Engineering Sciences, IVA

Since 2004 member of the Royal Swedish Academy of Sciences, KVA.

Since 2006 member of the Royal Physiographic Society in Lund

In 2005 responsible for the Successful proposal to SSF to initiate a Strategic Center in the field of Combustion Science and Technology

(1 of the 18 selected Centres among ~250 proposals in Science, Engineering science and Medicine)