

Name: Per Lundahl THOMSEN
Born: 29 July 1966
Nationality: Danish
Education: B.Sc.E., The Danish Engineering Academy (1986 – 1990).
Languages: Danish, English, basic German, basic French.

Professional Experience:

1998-Present: With DTU Space - Danish National Space Center.

2009-Present: Project Manager . . . Detailed design, manufacturing, integration, test and delivery of the ASIM MXGS X and Instrument Phase CD for the International Space Station (ISS). The development in this phase involves a national and international team of 50+.

2004-2009: Manager for National Space Institute Resources and Planning

2006-2010: Project Manager . . . DTU Space elements of the ASIM Phase B (see below).

2008-2009: Project Manager . . . Proposal definition and start-up of the International SWARM science center to process all scientific data from the 3 formation flying satellites.

2004-2006: Project Manager . . . ASIM Payload Phase A. ASIM is the largest Danish space to date. (5 optical cameras, X-ray telescope and associated support systems). Objective is to investigate red sprites, blue jets and elves. The payload is planned for flight in 2017 on the International Space Station (ISS). Team of 50+ . The Project has been developed with Terma AS and other international space and defense industries and universities.

2004-2007: Campaign Manager . . . The Danish astronaut campaign. An initiative on behalf of the Minister of Science and Technology, to identify Danish astronaut candidates, as well as to pave the way for getting a Dane selected for the ESA astronaut corps. (Denmark's first astronaut was selected by ESA 2009 and launched to ISS in 2015) . Project involved close collaboration between Royal Danish Air Force, space industry and ministries.

2004-2005 Manager of National Space Institute Administration

1998-2004: Programme Manager . . . Danish Small Satellite Programme. Responsible for activities related to small satellite developments within Denmark. Prime objective was to establish the programme from scratch based on experience gained in the Ørsted project (Denmark's first satellite) and in other related studies. Programme involved close contact with national and international defense and space industries and universities, Primary results were, apart from launch of Cubesats and the Argentine SAC-C mission, the European Space Agency selection and implementation of the of the Danish ACE+ (Phase B), SWARM and ASIM missions.

2002-2004 Project Manager . . . Danish part of the ESA SWARM Mission (incl. satellite payload responsibility; national and international team of 30+).

2000-2003: Fundraiser and Project Manager . . . Second complete Danish mission "Rømer", also, Fundraiser and system engineering consultant on two university satellites (Cubesats - successfully launched June 2003).

1996-2003: Lead Systems Engineer later Project Manager . . . Ørsted 2 Instrument Payload (development and AIT) on the Argentine satellite SAC-C. Payload similar to the Ørsted Satellite (see below), but modified to fit SAC-C satellite (International collaboration with NASA, JPL and CONAE in Argentina, national and international team of 30+).

1998-1999 Consultant . . . Terma AS stationed in US (3 months) . Objectives were to test the Ørsted satellite prior to launch vehicle integration, to perform the integration of the satellite on the Launch Vehicle and to support Launch and early operations for the operations team .

- 1991-1998:** With CRI A/S (now part of Terma A/S)
- 1997-1998** **Project Manager** . . . Study for the Danish Ministry of Research entitled MINI-SAT with the objectives of defining a microsatellite in the 10 kg range with the same science objectives as for the Danish satellite Ørsted.
- 1995-1998** **Project Manager** . . . Study performed for the Danish Ministry of Research to define the science objectives and industry interests for a future Danish small satellite.
- 1996** **Systems Engineer** . . . CRI-15AS Star Tracker project, an instrument for autonomous attitude determination of a given spacecraft. It was a development project, which in turn formed a commercial space product.
- 1995-1996:** **Project Manager** . . . ESA/ESTEC study “Geomagnetic Space Observatory (GSO) Mission Architecture” defining a constellation of two satellites one in 600 km polar orbit and one in 200 km polar orbit.
- 1993-1999:** **Lead Systems Engineer** . . . First Danish satellite “Ørsted” launched 23 Feb. 1999. The Ørsted geomagnetic satellite was carrying five science experiments in an elliptical, polar, low earth orbit. Objectives were to map the Earth’s magnetic field, measure the charged particle environment and collect occultation data. The project was rated by the readers of “Ingeniøren” as the 4th most significant Danish engineering result of the 20th century.
- 1991-1993:** **Business Development Engineer** . . . Involvement in more than 40 large proposals, mainly for European Space Agency, but also for Inmarsat, Eutelsat, CNES, Eumetsat and EU. Further, involved in generation of general marketing and sales material.
- 1989** With Kampihl A/S
- Civil Engineer Trainee** . . . Republic de Guiné (West Africa). Assignment focused around construction of a 150 m x 15 m dam and associated structures and buildings. Incl. a complete waste water treatment system providing drinking water to 20000 inhabitants.

Relevant Courses:

Spacecraft Systems Course (Southampton), Spacecraft Systems Engineering (ESTEC), Real-Time Structured Analysis and Design (Stockholm). Object-Oriented Analysis and Design (Stockholm), Structured Software Development (Copenhagen), Copenhagen Business College (Copenhagen): German & Business Economics

Outreach:

Numerous lectures given to public and closed audiences on the utilisation of space. Numerous appearances on national TV, radio and in printed media in relation to major national or international space events.

Selected Publications:

- 65th International Astronautical Congress, Toronto, Canada. Jan Svoboda, Per Lundahl Thomsen, Dr. Torsten Neubert. “ASIM – A cutting edge earth observation experiment for ISS”, October 2014.
- Aktuel Astronomi No.4/07, Oktober 2007, Per Lundahl Thomsen “Rumfart, vækst og fremtidens velfærd”
- 3rd International Symposium on Physical Sciences in Space (ISPS 2007), Nara, Japan, A. Orr, R. Nasca, M. Tacconi, S. De Mey, O. Hartnack, P. Davidsen, J.S.Pedersen, S.E. Jørgensen, O. Mikkelsen, K. Pedersen, O. Gløe-Jakobsen, P. L.Thomsen, J. Rodrigo, T. Neubert, N. Østgaard, V. Reglero, E. Blanc ”ESA’s Atmosphere-Space Interactions Monitor (ASIM) for the ISS, October 2007
- Dansk Rumfart (Magazine of the Danish Astronautical Society) No. 62, Per Lundahl Thomsen “En dansk astronautkandidat”, Jan. 2005.
- Børsen, Per Lundahl Thomsen, ”Rumfart – Nøglen til fremtidens velfærd”, 16 Januar 2004.
- Berlingske Tidende, Per Lundahl Thomsen, ”Danmark har brug for Rumfart”, 18 November 2003.
- Conference on Recent Advances in Space Technologies (RAST), Istanbul, Turkey, Per Lundahl Thomsen, Flemming Hansen, Nils Olsen & Eigil Friis Christensen, “SWARM – A Constellation to Study the Dynamics of the Earth’s Magnetic Field and its Interactions with the Earth System”, 20-22 November 2003
- Conference on Recent Advances in Space Technologies (RAST), Istanbul, Turkey, Per Lundahl Thomsen, Flemming Hansen “The Bering mission space segment”, 20-22 November 2003

- 17th Annual AIAA/USU Conference on Small Satellites, Utah, USA, Freddy M. Pranajaya, Dr. Robert E. Zee, Dr. Per Lundahl Thomsen, Dr. Mogens Blanke, Dr. Rafael Wisniewski Dr. Lewis Franklin, Dr. Jordi Puig-Suari "An Affordable, Low-Risk Approach to Launching Research Spacecraft as Tertiary Payloads", August 2003
- Berlingske Tidende, Per Lundahl Thomsen & Robert Feidenhansl (RISØ) "Ambitiøse Projekter har ikke en Chance", 26 April 2002
- Forskningsrådenes Årsberetning for 2001, Per Lundahl Thomsen & Jørgen Christensen-Dalsgaard "E n Stjerne fødes..." , Marts 2002
- Erhvervslederen, Nummer 5, Per Lundahl Thomsen "Rumforskning og Industri skal i fælles front", Nov. 2001
- International Forum "A Sustainable Programme of Small Satellites for Space Science and Applications", Rome Italy, Per Lundahl Thomsen & Flemming Hansen "Denmark's National Space Programme 2000", Sept. 2000.
- 14th Annual AIAA/Utah State University Conference on Small Satellites, Per Lundahl Thomsen & Flemming Hansen, "Denmarks Second Scientific Satellite" August 2000.
- Symposium on Microsatellite Applications, Canberra Australia, Per Lundahl Thomsen "Denmark's Rømer Satellite", May 2000.
- Nordic Space Activities, No.1/00 Per Lundahl Thomsen & Flemming Hansen "Denmark's Small Satellite Programme in the New Millennium", May 2000.
- Dansk Rumfart (Magazine of the Danish Astronautical Society) No. 45, Per Lundahl Thomsen "Hele Danmarks Rømersatellit", May 2000.
- Aktuell Astronomi No.1/00, January 2000, Per Lundahl Thomsen "Det Danske Småsatellitprogram"
- 13th Annual AIAA/Utah State University Conference on Small Satellites, Per Lundahl Thomsen & Flemming Hansen, "Danish Ørsted Mission In-Orbit Experiences and Status of The Danish Small Satellite Programme" August 1999.
- 2nd International Symposium of IAA on Small Satellites for Earth Observation, Berlin, Germany, Per Lundahl Thomsen & Flemming Hansen, "The Danish Small Satellite Programme is a Reality !" April 1999. This paper was also accepted by the Journal of International Academy of Astronautics for Acta Astronautica Vol 46 Jan-March 2000.
- Dansk Rumfart (Magazine of the Danish Astronautical Society) No. 38, February 1999, Per Lundahl Thomsen "Ørsted klargøres til opsendelsen".
- WWW.Rummet.dk and DR Online Diary for the launch campaign of the Danish Ørsted satellite in the period November 1998–February 1999.
- Nordic Space Activities, No.4/98 Per Lundahl Thomsen "The Danish Small Satellite program", December 1998.
- 4th International Symposium on Small Satellites Systems and Services, Antibes, France, Oral presentation by P.L.Thomsen "Status of the Danish Small Satellite programme", September 1998.
- 12th Annual AIAA/Utah State University Conference on Small Satellites, Oral presentation by P.L.Thomsen "Status of the Danish Small satellite programme ", September 1998.
- Dansk Rumfart(Magazine of the Danish Astronautical Society) No. 36, July-September 1998, Per Lundahl Thomsen "Det Danske Småsatellitprogram er nu igang".
- Per Lundahl Thomsen, Carlos Alonso, Carlos Hoffmann, Danish Participation in the Argentine SAC-C Satellite Mission, in: H.P. Röser, R. Sandau and A. Valenzuela (eds), *Small Satellites for Earth Observation*, Symp. of the International Academy of Astronautics Berlin, November 4-8, 109-112, Walter de Gruyter & Co., Berlin, Germany, 1996.
- Symposium on Small Satellites for Earth Observation, Berlin, Germany, Torsten Neubert, Alberto Tobias, Per Lundahl Thomsen "The Magnetometry Explorer: A Complete Mission, Two Small Satellites", November 1996.
- 10th Annual AIAA/Utah State University Conference on Small Satellites, W.R.Baron, K.Schultz and P.L.Thomsen "A Geomagnetic Smallsat Observatory for Operation in a 200 km Altitude Low Earth Orbit", September 1996.
- 3rd International Symposium, Small Satellites, Systems and Services, Annecy, France, P.L.Thomsen "Small Satellites: One Way of Putting Fun Back in Space Again.", June 1996.
- System Engineering Workshop, ESTEC, Noordwijk, The Netherlands, Dennis Bo Hansen, Per Lundahl Thomsen, Søren Mordhorst "The Ørsted Satellite System Engineering Effort", November 1995.
- Small Missions Opportunities and the Scientific Community Workshop, Colleferro, Italy, W.R.Baron and P.L.Thomsen "Scientific Mission Oppertunities using Mini-Satellite Technology", October 1995.
- Nordic Space Activities, No.5/94 Per Lundahl Thomsen "The Ørsted Satellite Project", December 1994.
- 8th Annual AIAA/Utah State University Conference on Small Satellites, W.R.Baron, M.Houghton-Larsen and P.L.Thomsen "Development of the Ørsted Satellite Project", August 1994.
- 1th Annual IEEE Conference on "Small Satellites and Control" Stellenbosch University, South Africa. W.R.Baron, M.Houghton Larsen and P.L.Thomsen "The Danish Ørsted Satellite", October 1994.
- 6th Annual AIAA/Utah State University Conference on Small Satellites, W.R.Baron, K.Leschly and P.L.Thomsen "Mapping of the Earths Magnetic Field with the Ørsted Satellite", September 1994.