

## CURRICULUM VITÆ

DECEMBER, 2010

### NAME, NATIONALITY

Bo Y. Thidé, Swedish

### LANGUAGE COMMAND

Swedish (mother tongue), English (fluently; Certificate of Proficiency in English, Cambridge University, UK), German (some), French (some), Russian (very rudimentary), Spanish (very rudimentary).

### CURRENT AFFILIATION

*Swedish Institute of Space Physics*

P. O. Box 537, SE-751 21 Uppsala, Sweden.

Home page: [www.physics.irfu.se/~bt](http://www.physics.irfu.se/~bt)

*Department of Physics and Astronomy, Uppsala University*

P. O. Box 516, SE-751 20 Uppsala, Sweden.

Home page: [www.fysast.uu.se](http://www.fysast.uu.se)

### ACADEMIC DEGREES AND APPOINTMENTS

*Professor*, Head of Programme ‘Physics in Space’, Swedish Institute of Space Physics (IRF), Uppsala, (appointed by the Swedish Government), 2000.

*Docent (Assoc. Prof.)*, Space Physics (formerly Geocosmical Physics), Uppsala, May, 1984.

*Ph.D.* (Wave theory), Department of Theoretical Physics, Uppsala University, Sweden, June, 1979.

*M.Sc.*, with honours (Majors: Mathematics, Physics, Theoretical Physics. Minors: Theoretical Philosophy, Computer Science, Astronomy, Meteorology), Uppsala University, Sweden, May, 1973.

*B.Sc.*, with honours (Theoretical Physics, Mathematics, Theoretical Philosophy), Uppsala University, Sweden, February, 1972.

### CURRENT ACADEMIC POSITION

*Head of Programme*, ‘Physics in Space’, Swedish Institute of Space Physics (IRF), Uppsala, 2000–present.

### PREVIOUS ACADEMIC POSITIONS

*Visiting Scientist*, Department of Astronomy, University of Padua, Italy, October, 2008.

*Visiting Professor*, Space Physics and Wireless Communication, Växjö University, 2002–2007.

*Director of Science* (at the professor level), Swedish Institute of Space Physics, 1991–2000.

*Visiting Scientist*, International Center for Advanced Studies (INCAS), Nizhniy Novgorod, Russian Federation, September, 1998.

*Visiting Scientist*, National Astronomy and Ionosphere Center, Cornell University, Arecibo Observatory, Puerto Rico, USA, October, 1985–March, 1986.

*Senior Scientist*, Swedish Institute of Space Physics, 1983–1991.

*Senior Research Engineer*, Swedish Institute of Space Physics, 1981–1983.

*Research Assistant*, Swedish Institute of Space Physics, 1980–1981.

*Visiting Scientist*, Department of Mathematics (Professor E. Squires), University of Durham, UK, Autumn, 1977.

*University Lecturer*, Department of Theoretical Physics, Uppsala University, 1975–1978 (part-time), 1979–1980.

*Research Assistant*, Department of Theoretical Physics, Uppsala University, 1972–1979.

#### PARENTAL LEAVE, MILITARY SERVICE

A total of 14 months of parental leave during the doctoral studies (1973-1979) and shortly thereafter. A total of circa two years of compulsory national military service with recurring training as subaltern officer (1968–1985) at Försvarets Radioanstalt (FRA).

#### PRIZES AND AWARDS

The Edlund prize, the Royal Swedish Academy of Sciences, for the discovery of Stimulated Electromagnetic Emissions and their use in ionospheric research, 1991.

The Lundström-Åman scholarship, Faculty of Mathematics and Science, Uppsala University, 1974–1976.

#### TEACHING

Classical Electrodynamics (1993–2007, 2009–2010), Wave Propagation (1999, 2005), Statistical Mechanics for Non-Equilibrium Systems (2000, 2003, 2006), Electromagnetic Sensors (2001, 2002), Non-Linear Waves, Solitons and Chaos (1992), Space Physics (1991), Plasma Waves (1990), Fluctuations and Non-Linear Wave Interactions in Plasmas (1990), Ionospheric and Magnetospheric Physics (1985), Non-Linear Wave Phenomena in Plasmas (1982), Mathematical Methods of Geocosmical Physics and Plasma Physics (1981), Mathematical Methods of Physics (1979, 1980), Analytical Mechanics (1979, 1980), Thermodynamics and Statistical Mechanics (1975–1980).

#### DOCTORAL STUDENT SUPERVISION

Dr. Åke Hedberg, 1985, Dr. Thomas Leyser, 1989, Dr. Simon Goodman, 1993, Dr. Mattias Walden-  
vik, 1994, Dr. Tobia Carozzi, 2000, Dr. Bengt Eliasson, 2002, Dr. Jan Bergman, 2004. Dr. Roger  
Karlsson, 2005, Dr. Mykola Khotyaintsev, 2007, Dr. Lars Norin, 2008, Dr. Lars Daldorff, 2009, Dr. Gabriele  
Anzolin (Padova), 2009.

In addition, Bo Thidé has supervised five students to their Licentiate degrees, and twenty to their  
Master's degrees. Currently he is external supervisor for the PhD students Elettra Mari and Anna  
Sponselli (Padova).

#### POST-DOC COLLABORATION

Dr. Pavlo V. Ponomarenko, 1996–1997; Dr. Holger Then, 2004; Dr. Axel Guthmann, 2003–2005.

#### THESIS REVIEWER

M.Sc. John Bendjamine, Institute of High Voltage Research, Uppsala University, December 17, 1997.

M.Sc. Anna Sponselli, Department of Astronomy, University of Padova, Italy, October, 2009.

#### PH.D. EXAMINATION COMMITTEES

Member of more than 35 PhD examination bodies at various universities and institutes in Sweden  
and abroad.

#### PUBLICATIONS, CONFERENCES, PUBLIC OUTREACH

More than 200 publications (books, book chapters, articles, conference proceedings, lectures, and  
other scientific presentations). More than 60 invited talks/lectures. More than 20 appointments as  
programme and/or organisation committee chairman or member at international scientific confer-  
ences. More than 60 public articles/interviews in newspapers, journals, radio and TV. Recurring con-  
tributor to the 'Vetenskapsradion' ('Science Radio', Swedish Broadcasting Corporation).

#### REFeree APPOINTMENTS

Funding Agencies:

*Royal Swedish Academy of Sciences (KVA); Swedish Research Council (VR); Research Council of  
Norway (RCN); National Science Foundation (NSF), USA; Royal Society, UK; Leverhulme Trust,  
UK; INTAS/European Community; Soros Foundation, USA; Swedish International Development Co-  
operation Agency (SIDA); Qatar National Research Foundation (QNRF); Georgian National Science  
Foundation (GNSF); Superior Council of the National Fund for Scientific & Technological Develop-*

ment (FONDECYT), Chile.

Lectureships/Professorships:

University of California, Los Angeles, USA; Uppsala University, Uppsala, Sweden; Linköping University, Sweden; Stockholm University, Sweden; Blekinge Tekniska Högskola, Sweden.

Textbooks:

Institute of Physics Publishing; Springer-Verlag

Articles in scientific journals:

*Journal of Atmospheric and Terrestrial Physics*; *Journal of Geophysical Research*; *Radio Science*; *Physica Scripta*; *Geophysical Research Letters*; *Annales Geophysicae*; *Journal of Physics D: Applied Physics*; *Laser and Particle Beams*; *Software-Practice & Experience*.

#### JOURNAL EDITOR APPOINTMENTS

*Co-Editor*, The Open Atmospheric Science Journal, 2007–present.

*Guest Editor*, Journal of Atmospheric and Solar-Terrestrial Physics, 1997.

#### SELECTED FUNDING GRANTS

Swedish Governmental Agency for Innovation Systems (VINNOVA), research grant, 2008 (main applicant). Title: *Development of a fast sampling and control unit for breakthrough radio systems*. Amount: SEK 500 000.

Swedish Research Council (VR), research grant, 2008–2010 (main applicant). Title: *Improved radio studies of space—Development of a new information-rich method based on fundamental properties of the electromagnetic field*. Amount: SEK 1 800 000.

US National Science Foundation (NSF), research grant, 2007–2008 (co-applicant). Title: *Acquisition of a Full-Wave Interferometric Digital Radio System for Space Research and University Education*. Amount: USD 226 025.

Crafoord Foundation grant, 2007 (main applicant). Title: *Heliophysics in Southern Sweden*. Amount: SEK 100 000.

Swedish National Space Board (SNSB) research grant, 2006. Title: *Electrodynamics in Space*. Amount: SEK 100 000.

Knut and Alice Wallenberg Foundation grant, 2006 (co-applicant). Title: *Integrated Acoustic and Electro-Magnetic Diagnostics Instrument*. Amount: SEK 6 500 000 (hardware only).

IBM Research Shared University Research (SUR) grant, 2006 (main applicant). Title: *Real-Time Management and Analysis of Massive Streams of Event Data from Complex Sensor and Actuator Grids for Earth and Space Applications*. Amount: About USD 200 000 (computer hardware only).

European Union INTAS grant for joint Russian-Ukrainian-Norwegian-British-German-US-Swedish space research, 2004–2007 (main applicant). Title: *Non-linear wave interaction, plasma structuring, and electron acceleration in the ionosphere, modified by powerful radio waves*. Amount: EUR 174 000.

IBM Research Shared University Research (SUR) grant, 2004 (main applicant). Title: *Bringing Space On Line: High-Performance GRID Data Management and Computing for a Distributed Space Probing Sensor Network*. Amount: About USD 200 000 (computer hardware).

Swedish Governmental Agency for Innovation Systems (VINNOVA) research grant, 2002 (co-applicant). Title: *An adaptive GRID-service Architecture for a distributed, time-coherent radio/IT-network*. Amount: SEK 2 400 000.

Swedish National Space Board (SNSB) research grant, 2002. Title: *Nano-satellite technology*. Amount: SEK 325 000.

Swedish Governmental Agency for Innovation Systems (VINNOVA) research grant, 2001 (co-applicant). Title: *High-performance data base manager for numerical data*. Amount: SEK 3 600 000.

Knut and Alice Wallenberg Foundation grant, 2002 (co-applicant). Title: *Nine geodetic GPS receivers with associated choking antennas and software for positioning and surveillance measure-*

*ments*. Amount: SEK 2 500 000.

Royal Swedish Academy of Sciences/Academy of Sciences of the USSR/Russia grant for joint space physics research, 2000. Amount: SEK 70 000.

Swedish Research Council for Engineering Sciences (TFR), National Graduate School for Super Computing grant for travel and other expenses, 1999–2002, for graduate student Bengt Eliasson. Total amount: SEK 120 000.

Research grant for studying non-linear wave-wave interactions in the ionosphere, Swedish Natural Science Research Council (NFR), held June 1981–2003.

Research grant for development of nano satellite Nanny-1 for investigation of space plasma and radio wave phenomena, Swedish Space Board (SSB), held 1998–2002.

International Center for Advanced Studies (INCAS), Nizhniy Novgorod, Russian Federation, 1998. Amount: USD 7 500.

European Union INTAS grant for joint Russian-German-Swedish space research, 1996–1997. Title: *Artificial Ionospheric Turbulence and Stimulated Electromagnetic Emissions (SEE)*. Amount: ECU 40 000.

Special grant for the procurement of a high-performance digital baseband signal analysis system, Swedish Natural Science Research Council (NFR), 1995. Amount: SEK 1 440 000.

Royal Swedish Academy of Sciences/Academy of Sciences of the USSR/Russia grant for joint space plasma research, 1991, 1994 and 1997. Amounts 1994 and 1997: SEK 60 000.

The Göran Gustafsson foundation, 1987, 1988 and 2001.

Special grant for the procurement of a large, advanced RF spectrum analysis system, Swedish Council for Planning and Coordination of Research (FRN), 1982–1983. Amount: SEK 300 000.

#### CURRENT RESEARCH INTERESTS

Electromagnetic angular momentum methods for diagnostics of vorticity. Radio wave propagation and interactions. Electromagnetic radiation from turbulent space plasma (phenomenon discovered experimentally by Bo Thidé in 1981 in Tromsø, Norway). Development of innovative experimental techniques for space studies. Advanced electrodynamics in the Universe. Non-equilibrium plasma processes. Computers and computing in physics. Theory of science.

#### COMMISSIONS OF TRUST (PARTIAL LIST)

*Member*, Executive Committee, LOFAR-Sweden Consortium, 2009–.

*Member*, International Advisory Committee, Plasma and Space Science Center, National Cheng Kung University, Tainan, Taiwan, 2009–.

*Member*, Board of Governance, School of Engineering, Blekinge Institute of Technology (BTH), Sweden, 2009–.

*Member*, Committee for Physics and Astronomy, National Science and Engineering Research Council (NSERC), Canada, 2009–.

*Core Member*, LOFAR Solar Physics and Space Weather Key Science Project (KSP) 2008–.

*Deputy Chairman*, Programme Committee for Education in Information Technology and Electrotechniques, Uppsala School of Engineering, Uppsala University, 2005–2008.

*Scientific leader*, International coordinator of the ground programme for the “Obstanovka” experiment on the Russian segment of the International Space Station (ISS), 2004–.

*Coordinator*, International research project Non-linear wave interaction, plasma structuring, and electron acceleration in the ionosphere, modified by powerful radio waves’, INTAS, Brussels, Belgium, 2004–2007.

*Chairman of the Board*, Uppsala Multidisciplinary Centre for Advanced Computational Science (UPPMAX), Uppsala University, 2003–present.

*Scientific leader*, International coordinator of the ground programme for the “Obstanovka” experi-

ment on the Russian segment of the International Space Station (ISS), 2004–.

*Member of the Programme Committee*, CDP, Centre for Dynamical Processes and Structure Formation, Faculty of Science and Technology, Uppsala University, 2001–present. ([www.cdp.uu.se](http://www.cdp.uu.se)), 2003–present.

*Chairman*, Uppsala University committee for the EU Green Book ‘European Space Policy’, 2003.

*Director*, LOIS Space Centre, ([www.lois-space.net](http://www.lois-space.net)), Växjö University, 2002–present.

*Programme Director/Head of Programme*, Swedish Institute of Space Physics ‘Physics in Space’ research programme, 2001–present.

*Member*, Scientific Committee on Telecommunications, URSI (International Union of Radio Sciences), 2002–2005.

*Member*, Swedish National Committee for Astronomy of the Royal Swedish Academy of Sciences, 2002–2006.

*Member*, Nordic GRID Committee, on behalf of the Swedish Research Council (Vetenskapsrådet, VR), 2001–2003.

*Member of the Board*, FANTOM Graduate School, KVI, Groningen, the Netherlands ([www.kvi.nl/~fantom](http://www.kvi.nl/~fantom)), 2001–present.

*Deputy Programme Director and Chairman*, Local Advisory Group, of the Strategic Foundation sponsored graduate school Advanced Instrumentation and Measurements (AIM; [www.aim.uu.se](http://www.aim.uu.se)), Uppsala, 2000–present.

*Member of the Board*, Department of Astronomy and Space Physics, Uppsala University, 2000–present.

*Chairman*, Commission H, Swedish National Committee of Radio Science (URSI, International Union of Radio Sciences) of the Swedish Royal Academy of Sciences, 2000–present.

*Member of the Board*, Graduate Programme in Physics at Uppsala University (gradU; [www.physics.uu.se/education/gradU](http://www.physics.uu.se/education/gradU)), 1998–present.

*Member*, interviewing committee for the Advanced Instrumentation and Measurements (AIM; [www.aim.uu.se](http://www.aim.uu.se)) graduate programme, Uppsala University, 1998–present.

*Member*, Programme Committee, V Suzdal URSI (International Union of Radio Science) Symposium on Artificial Modification of the Ionosphere, Moscow, Russia, August, 1998.

*Member*, Committee for the revision of the Scientific Computing Master Education Programme at the School of Engineering, the Faculty of Science and Technology, Uppsala University, 1998.

*Project Manager*, Swedish National Space Board sponsored research project ‘Nanosatellite technology development’, 1997–2003.

*Member*, Committee for the development of a new Graduate Programme in Physics at Uppsala University (gradU), 1997–1998.

*Member*, Committee for the strategic long-term planning for the The Svedberg Laboratory national Swedish particle accelerator facility at Uppsala University, 1997–1998.

*Co-Chairman*, International Summer School on Space Plasma Physics, Volga River, Russia, 1993, 1995, and 1997.

*Chairman*, committee for the planning of education in Complex Systems at the Faculty of Science and Technology, Uppsala University, ([www.plasma.uu.se/ComplexSystems](http://www.plasma.uu.se/ComplexSystems)), 1995–1996.

*Co-Chairman*, Programme and Organising Committee, Second International Summer School on Space Plasma Physics, Volga River, Russia, June, 1995.

*Chairman*, Organising Committee IV Suzdal URSI (International Union of Radio Science) Symposium on Artificial Modification of the Ionosphere, Uppsala, Sweden, August, 1994.

*Co-Chairman*, Organiser and Committee, First International Summer School on Space Plasma Physics, Volga River, Russia, May–June, 1993.

*Initiator and Manager* of extensive, pioneering collaborations with Russian and Ukrainian scientists

(space physics, astrophysics), including several joint experiments on site at Soviet/Russian research facilities, 1987–present.

*Scientific Coordinator*, Space radio project HiScat International Radio Observatory, 1984–1989.

*Organising Committee Co-Chairman*, Nordic Research Course on Radiation and Scattering Processes in Space Plasmas, Sigtuna, Sweden, June, 1983.

*Research Leader*, Swedish Research Council sponsored research project ‘Interaction between electromagnetic radiation and space plasma’, 1983–2003.

*Student Representative*, Tjänsteförslagsnämnden (Appointment Committee), Section for Mathematics and Physics, Uppsala University, 1975–1980.

*Member of the Board*, Amanuensföreningen (local chapter, University Teachers’ Union), Uppsala University, 1974–1980.

*Member*, Utbildningsutskottet (Education Committee), Uppsala Student Union, Uppsala University, 1974.

*Student Representative*, Utbildningsnämnden (Faculty Education Board), Mathematics and Science Faculty, Uppsala University, 1973–1975.

*Deputy Chairman*, Utbildningsrådet (Student Education Council), Mathematics and Science Faculty, Uppsala University, 1973–1975.

#### COMPUTER AND COMPUTING EXPERIENCE

Networking: Experience since 1977 (before the world-wide computer networks had become ‘Internet’).

Operating systems: IBM-360, TOPS-20, UNIX/Linux, Rocky Mountain Basic, HP RT Pascal, Windows

Programming languages: FORTRAN (since 1967), Reduce/LISP (1973), Basic (1973), Pascal (1981), Assembler (1981), C (1983), TeX/LaTeX (1985)

Application programming: Physics modelling, numerical solvers,  $\TeX/\LaTeX$  macro packages and drivers, graphics raster translators, real-time instrument control and data taking, signal analysis, 2D and 3D visualisation (Benson, PLOT-10, Core Graphics, PHIGS, PEX, Open GL)

Official contributor to:  $\LaTeX$ , X Windows, netpbm.