

Curriculum Vitae

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Academic degrees and positions:

- 2000 Professor in subatomic physics, Uppsala University
- 1991 Staff physicist in DESY theory group, Hamburg, Germany (permanent position held part-time)
- 1989 Lecturer in subatomic physics, Uppsala University
- 1988 'Professor competent' in theoretical subatomic physics, Uppsala University
- 1987 Docent in theoretical physics, Lund University, referee prof. A. Donnachie (Manchester)
- 1985–89 Scientific associate, DESY theory group, Hamburg, Germany
- 1985 Scientific associate, UCLA
- 1983–85 Fellow at CERN theory division, Geneva, Switzerland
- 1982 PhD in theoretical physics, Lund University, supervisors profs. Bo Andersson, G. Gustafson, opponent prof. Frank Close (Oxford/Rutherford Lab)

Research: >170 publications with ~4900 citations, >140 talks/seminars. Main achievements:

- Participated in the development of the Lund model and Monte Carlo programs (Lepto, Pythia, Twister, Lucifer, Aroma, Major, Pompyt, SCI).
- Started the field of *diffractive hard scattering* with model for pomeron structure.
- Studies and tests of *perturbative QCD dynamics*: quark/gluon processes, high- p_{\perp} jets, single and multiple gluon emission, BFKL colour singlet gluon ladder ladder exchange.
- Developed models for *non-perturbative QCD dynamics*: polarisation from the Lund string model, multiplicity distributions, diffractive interactions via pomeron, soft colour interactions as parton rescattering in QCD, parton distributions in hadrons, jet quenching as signal for quark-gluon plasma.
- *First experimental observation/evidence* of diffractive hard scattering (UA8), pomeron-quark interactions and longitudinal event structure in diffraction (R608), QCD higher twist prompt meson production (WA77, WA69), anomalous prompt photon emission (EMC).
- Studies of physics *beyond the standard model*, e.g. heavy neutrinos and exotic quarks in higher dimensional theories.
- *Astroparticle physics*: studies of neutrino fluxes and using the moon as detector for cosmic neutrinos.
- Organized various research activities and built up a research group in Uppsala.
- Advocated the general scientific interest for the *free electron laser* and initiated research in *biophysics*.

Awards: 'Edlund prize' by the Royal Swedish Academy of Sciences 1999.
 'F-läraryrket', undergraduate students' pedagogical prize for best teacher 2006.

Grants: FRN 560 kSEK for computers 1990; NFR/VR 4-600 kSEK/year since 1990, 600 kSEK 1992-93 for graduate student, 600 kSEK 1999-2000 for postdoc; Nordita 200 kDKK 1996-97 for Nordic network; Göran Gustafsson foundation 100 kSEK 1996; Nobel Inst. for Physics (KVA) 160 kSEK 1996 for meeting 'Future electron accelerators and free electron lasers – prospects and opportunities in natural sciences'

Memberships: Swedish Physical Society (Svenska fysikersamfundet).

Royal Academy of Arts and Sciences of Uppsala (since 1997, deputy in board 2004–)

Assignments at faculty, UU: committee on undergraduate teaching (1991/92), advisory committee for the dean of physics (1992/93), committee on undergraduate teaching organization (1996), committee on the graduate school of physics (1996-98), chairman for committee to evaluate government proposal for university positions (1996/97), committee on graduate teaching, director of study (1998–2001) and board member (1998–2005) for Graduate Programme of Physics, ‘docenturnämnden’ 2005–, committee for ‘Centre for Dynamical Processes and Structure Formation’ (CDP) 2007—

Assignments nationally/internationally:

- Scientific reference group for Supercomputer Centre ‘Norr’, Sweden
- Swedish Research Council (VR/NFR): committee (NT-M) for judging grant applications in subatomic physics and astrophysics 1997–98, 2003–04, 2006 deputy chairman; CERN committee 2000–06.
- Swedish delegate in European Committee for Future Accelerators (ECFA) 2000–06.
- Editor for section on high energy physics in *Physica Scripta* 1999–2006.
- Editor for 7 proceedings of international workshops/conference sessions.
- Convener and summary speaker at 7 international workshops.
- Organizer of 11 international workshops (4 of them year-long with several study groups, and one cross-disciplinary on free-electron lasers), 5 sessions at conferences and 2 summer schools.
- Organizing committee of ‘Lepton-photon symposium’ (~500 participants) in Uppsala 2005.
- **Referee** for *journals* (Physics Letters B, Nuclear Physics B, Zeitschrift für Physik C, European Physical Journal C, Modern Physics Letters, Physica Scripta, Physical Review D, Physical Review Letters, Nuclear Instruments and Methods), *Ph.D. examination committees* (Uppsala, Lund, Stockholm, Hamburg), *Habilitation* (Hamburg), *professorship* (UCLA), *Promotion to professorship* (Lund), *Research grant applications* (Swedish Research Council, Supercomputer Centre ‘Norr’, Soros Foundation, Academy of Sciences of Czech Republic).

Supervision of PhD theses: at Uppsala university (UU) as main supervisor (PhD-year and later career)

1996 Johan Rathsman, postdoc SLAC and CERN, research associate UU, lecturer UU 2006

1996 Mats Thunman, reactor safety simulation expert Forsmark, Westinghouse

1998 Anders Edin, postdoc DESY and Durham, scientific programmer Sidec Technologies, Kista

2001 C.B. Mariotto (lic.), PhD Porto Alegre, Brazil, lecturer Univ. Rio Grande, Brazil

2002 Nicusor Timneanu, research associate in biophysics UU (VR-funded 2007–)

2003 Rikard Enberg, postdoc Paris, Berkeley 2005-07, Tuscon, Arizona 2007–

2005 Johan Alwall, postdoc Lovain la Nueve, SLAC 2006-08

and presently O. Stål (2010); also co-supervisor for J. Damet 2001 and presently for D. Eriksson (2008).

Co-supervisor for P.N. Burrows, Oxford univ. 1988, A.G. Brandt, UCLA 1992, M. Nyberg-Werther, Lund univ. 1994, Ch. Jacobsson, Lund univ. 1995, and presently K. Zapp, Heidelberg univ.

Teaching: Graduate group theory, particle physics, QCD, Monte Carlo methods; lectured at 8 international summer schools. **Undergraduate** particle/nuclear physics, programming/numerical methods, project managing, quantum mechanics (top-graded 4.7–4.9 in evaluations); supervised 16 Master theses.

Popular science: Co-editor for book on ‘Elementary Particles’ Kosmos 1981. Articles about the 1990 Nobel prize in Kosmos and about the top quark discovery in ‘Dagens Nyheter’. Talks/lectures for various audiences (general public, school pupils/teachers, undergraduate students). Active in ‘Ambassador’ project for bringing science to schools, organized visits at DESY for school classes.