

Curriculum Vitæ — Lars Eklund

Personal data

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		E-mail:	Lars.Eklund@cern.ch
Date of Birth:	19 March 1973	Nationality:	Swedish
Language skills:	Fluent Swedish, English, French. Basic Spanish		

Education

1999-2003	Ph.D. Uppsala University	Advanced Measurement & Instrumentation Graduate School
		'Performance and Radiation Hardness of the ATLAS/SCT Detector Module'
1992-1998	M.Sc. Linköping University	Applied Physics and Electrical Engineering
		'Monitoring of the Composition of the Cherenkov Radiating Fluids at DELPHI's RICH Detectors'
1994-1995	Army School of Technology	Military Service (Sergeant)
1989-1992	Wargentinskolan	Upper Secondary School, Science and Technology Branch

Appointments

2011-present	Reader, University of Glasgow
2006-2011	Research Fellow, University of Glasgow
2004-2006	Fellowship, CERN, Geneva
1999-2003	Ph.D. Student, Uppsala University
1999-2001	Doctorial Student Award, CERN, Geneva
1999	Project Associate, CERN, Geneva
1998-1999	Technical Student, CERN, Geneva

Conferences and Graduate Schools

Member of IOC of the Vertex Conference series
Coordinator Glasgow PPE Summer Student Programme
Teacher EDIT School of Instrumentation 2011
Chair of LOC of Vertex Conference 2010
Teacher ICFA School of Instrumentation 2010
Member LOC PSD Conference 2008
Member LOC SCT week 2002, Uppsala

Teaching and Supervision

2011	Lecturing (Frontiers of Physics)
2006-present	Supervision in Glasgow (3 Ph.D., 1 Masters, 2 Project and 2 summer students)
2006-present	Lab supervision (<i>Physics 1 and 2, Python Graduate course</i>)
2004-2006	Supervision at CERN (1 Ph.D., 1 Masters and 2 summer students)
1999-2003	Supervision in Uppsala (1 Masters Student)
1996-1997	Undergraduate classroom tutorials (<i>Mathematics, Introductory Course; Probability, First Course; Statistics, First Course; Transform Theory</i>). Lab supervision (<i>Physics</i>)

Research Leadership

2012-present	LHCb/Velo Project Leader
2012-present	LHCb B->hh analysis group co-convener
2012-present	LHCb Glasgow Deputy Group Leader
2010-present	LHCb/Velo UK Deputy Project Leader
2008-2011	Leading the MCM-D Hybrid developments for Atlas Upgrade
2007-2011	Glasgow Velo Deputy Group Leader
2009-2010	LHCb Velo Commissioning Coordinator (part time)
2004-2006	Coordinator for the Experimental Control System LHCb/Velo

Research Highlights

LHCb Experiment

- Project Leader for the LHCb/Velo, coordinating the efforts of the 13 institutes involved in the detector.
- Coordinator of the strip module development for the LHCb/Velo Upgrade.
- Analysis in preparation, measuring multiple B lifetimes in two-body final states on 2011 data.
- Analysis in preparation, searching for the decay $B_{d,s} \rightarrow p \bar{p}$, which would be the first observed fully baryonic two-body meson decay.
- Lead analyst on the $B_s \rightarrow KK$ lifetime measurement on 2010 data, a worlds-best measurement and the first published lifetime measurement from LHCb.
- Played a central role in the commissioning of the detector and active in the operation of it, duties as expert on-call for Velo and responsible for maintenance of the Velo HV system.
- Coordinating the silicon module reception tests at CERN for the Velo replacement.
- Designed and coordinated the construction of the Velo Experimental Control System (ECS). I designed the system architecture, coordinated the design of the required hardware, procured and radiation qualified the components and saw the system through installation and commissioning.
- Designed and commissioned the Velo High Voltage (HV) system and am responsible for its operation.
- Pioneered the work on Velo data acquisition system (DAQ) with the first use of the LHCb-wide DAQ board for the Velo.
- Had a leading role in Velo detector module prototype evaluation in laboratory and beam tests, based on this experience defined a re-tune of the front-end ASIC parameters that are now in use.
- Studied the performance of the data link from the silicon module to the off-detector electronics. Developed an algorithm to correct for distortions in the transmission (FIR filter).
- Made early studies of occupancies, data rates and transfer protocols for the Velo upgrade, in view of the challenges of 40 MHz read-out rate.
- Leading the conceptual design of the strip option for the Velo upgrade, in particular the sensor layout.
- Active in beam tests for Velo upgrade strip and pixel sensors, both operationally during the tests and in building prototype detector modules. Supervising Ph.D. students analysing beam test data.
- Developed the control software for the gas system used for evaluating RICH prototypes in a beam test.

Atlas Experiment

- Leading an R&D project for the Atlas Upgrade evaluating a novel technology for building the front-end hybrids, known as MCM-D. I have managed the project and its external commercial research partner; I have provided complex technical specifications, designed processing masks and evaluated prototypes.
- Led the proton irradiations of front-end electronics and detector modules, including pre- and post irradiation characterisation.
- Had a leading role in the radiation qualification of the SCT front-end ASIC, working closely with the designers during several design iterations.
- Measured the Single Event Upset cross-section for the SCT front-end ASIC.
- Leading role in the SCT beam tests during the prototyping phase, responsible for detector module characterisation and operation.
- Co-developer of the electrical Quality Assurance (QA) procedures and the DAQ used during SCT detector module prototype evaluation and during production.
- Responsible for the electrical QA in the Scandinavian module production cluster, preparing the test stands used during production.

Detector Development

- Studies of slim-edge silicon sensors using a micro-focussed synchrotron x-ray beam.
- Evaluated an Active Pixel Sensors for High Energy Physics applications in laboratory and beam tests. This included the development of firmware and software for the DAQ and a software framework for the data analysis.
- Designed a system for evaluating LHC upgrade prototypes, based on the LHCb read-out board. It provides both control and DAQ and has been used in multiple beam tests.
- Studied the effects of high intensity beam loss incidents on biased silicon modules and front-end electronics in a dedicated set-up in the PS booster.
- Active in beam tests evaluating of 3D silicon sensors and prototype planar silicon sensors.
- Member of the RD50 collaboration

DELPHI Experiment

- Developed a system for monitoring the composition of the Cherenkov radiating gas and liquids in the RICH detectors.
- Maintained the control software for the Cherenkov radiating gas and liquid systems.
- Active in the operation of the detector and as expert on-call for the RICH system.