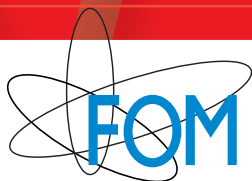


**Appendix**  
Publications  
2005-2010

FOM Institute  
for Subatomic Physics

**Nikhef**

**NIKHEF**

**FOM**

**NWO**

Bosworth

**APPENDIX:**  
**Publications 2005-2010**

FOM Institute  
for Subatomic Physics  
Nikhef





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# Introduction

This document is an appendix to the Nikhef Self-evaluation report. All scientific output and other relevant items related to Nikhef's research programme are reported in this document.

In Chapter One, a list is given of hardware and software products made by Nikhef physicists, computer scientists and technicians, in use in other experiments (without Nikhef participation), or on the market. Typical applications include medical and analytical imaging, automated measuring, monitoring and control systems, grid computing software and advanced symbolic manipulation software.

Chapter Two lists all theses written and defended by Nikhef PhD students between 2005 and 2010. PhD students at Nikhef are enrolled in the accredited Dutch Research School for Subatomic Physics and follow its educational programme. On average, more than 10 theses are produced per year. The median duration between start of contract and thesis defence is slightly over five years, compared to a nominal contract duration of four years. Reasons include the delay often imposed by university formalities (three to six months typically), maternity leave, sick leave, activities for the works council, and the fact that during this review period the LHC machine had a problematic start-up phase, leading to delays in data-taking of the experiments and thus in gathering data for PhD students to analyse. Unfortunately, these kinds of delays are inevitably associated with big projects. Nevertheless, reducing the time needed to graduate is a point of action.

Nikhef's scientific papers published in this period are collected in Chapter Three. The ordering of the sections in this chapter is identical to the ordering of the scientific programmes in the self-evaluation report. Typically,

experiments in a building phase produce relatively few papers per year, on design studies, hardware, electronics, and beam tests. Running experiments, however, produce a large number of papers per year. Apart from papers in scientific journals, specific contributions of Nikhef physicists are documented in internal notes, which are also peer reviewed. These are traditionally not listed in overviews, but are gaining importance.

The international community of high-energy physics have been pushing the introduction of Open Access journals, in line with the CERN Convention that "the results of its experimental and theoretical work shall be published or otherwise made generally available." This resulted in the start of SCOAP3 (Sponsoring Consortium for Open Access Publishing in Particle Physics: an international consortium of high-energy physics organisations and leading national and international libraries or consortia of libraries with the specific aim to facilitate Open Access publishing in high-energy physics).

Nikhef and the organisation of the Dutch University Libraries (UKB) joined officially at the start in 2008. The transition to Open Access is facilitated by the fact that the large majority of HEP articles are published in just six peer-reviewed journals. The papers concerning the technical description of each LHC experiment have already been published in a new Open Access Journal of Instrumentation (JINST). Neelie Kroes, Vice President of the European Commission and Commissioner for the Digital Agenda, has addressed a meeting of the stakeholders of the global SCOAP3 initiative held at CERN on 6 April 2011. In her address she wished SCOAP3 a "...success [that] will be more than just a proof of concept. It will show us a passable way into the future of scientific publishing that others can follow". Commissioner Kroes continued mentioning that "Access to scientific results for free, for all, for ever is a compelling vision indeed".



Figure 1. Nikhef-Utrecht Professor of Subatomic Physics Thomas Peitzmann is one of a select group of 'Hottest Researchers' in 2007 according to ScienceWatch, as a result of his work for both STAR and PHENIX experiments at RHIC, Brookhaven.

# 1 Products

Distinctive Products (hard- and software in use at other experiments or in the market)

- Medipix systems: Nikhef is actively involved in the Medipix2 collaboration at CERN, of which the goal is to transfer the technology, developed for semiconductor pixel detectors within high-energy physics, towards other applications such as medical and analytical X-ray imaging. The Nikhef group is involved mainly in the development of read-out interfaces for the Medipix2 chip as well as in chip carrier boards design. Combination of these two topics is the RelaXd project: development of the large area fast detector system using the Medipix2 chip. A general Nikhef-developed readout system for RelaXd and TimePix (further development of the Medipix chip) is now widely used.
- RASNIK equipment: alignment system to measure and monitor exact positions of detectors, used in several (LHC) experiments and now also in development for other applications; transferred for commercial applications to the firm Sensiex.
- Grid software:
  - 'The Virtual Laboratory for e-Science Proof-of-Concept Environment (release 1)'; the VL-e Project consortium and partners 2005–present, software engineering, integration and assembly by Nikhef. Current release 1.1, deployed on the Dutch national BiG Grid infrastructure.
  - 'Estimated Response Time Info Providers'; measurement, estimator development and implementation by Nikhef; 2007–present, part of gLite grid middleware distribution.
  - 'LCAS and LCMAPS, a site authorization, access control and enforcement service'; the EU Datagrid consortium and partners, the EGEE consortium and partners 2001–present. Part of gLite grid middleware distribution, also used in other grid middleware suites.
  - 'BDII, the Berkeley Database Information Index'; a hierarchical persistent-caching resource information service for the grid. 2002–present, included in the gLite middleware distribution and used in other grid middleware suites. Conceived and developed at Nikhef as part of the EU Datagrid project.

## Personalities

|                         |   |
|-------------------------|---|
| Medipix systems         | dr. Jan Visser  |
| RASNIK equipment        | dr. ir. Harry van der Graaf,<br>ing. Henk Groenstege  |
| Grid software           | dr. David Groep,<br>drs. Jan Just Keijser,<br>dr. Jeff Templon                                      |
| FORM software           | dr. Jos Vermaseren  |
| CO <sub>2</sub> cooling | ing. Bart Verlaat,<br>dr. Auke-Pieter Colijn  |
| CAN hardware & software | ir. Henk Boterenbrood (software),<br>ing. Jaap Kuijt (hardware),<br>ing. Henk Groenstege (hardware) |
| Hall effect sensors     | ing. Henk Groenstege  |
| Mini-HV systems         | ing. Henk Groenstege,<br>ing. Jaap Kuijt  |
| RooFit software         | dr. Wouter Verkerke   |

- 'glExec'; a secure grid mechanism for in-process Unix credential mapping; the EGEE consortium and partners 2005-present; included in gLite and OSG middleware distributions.
  - 'MoniFarm – graphing farm occupancy for a PBS/Torque LRMS'; historical cluster load occupancy and graphing application; deployed throughout the South East European Grid (SEEGRID) and selected EGEE and LCG resource centres.
  - SCAS (Site Central Authorization Service); 2008–present, part of the gLite middleware distribution.
  - Execution Environment Service; part of the EMI middleware distribution, scheduled release date 27 april 2011.
  - jGridstart; 2008–present, tool to automate requests and renewals for grid credentials, available to all Dutch grid users.
  - Plugin for direct submission to CREAM CE; distributed as part of the GANGA analysis framework.
- 
- FORM software: a computer program for manipulating very large formulae as developed by the Theory Group at Nikhef. It is devoted to the manipulation of such formulae where other systems may give up, pattern matching in formula manipulation, and computations in non-commutative algebras and high-energy physics. The program is used at many sites around the world. Other theory program developments are mentioned in the Self-evaluation Report.
- 
- CO<sub>2</sub> cooling: a development of a mechanically pumped two-phase CO<sub>2</sub> cooling loop for the Si-tracker for AMS (an ISS attached international payload searching for antimatter, dark matter and lost matter) and for LHCb (and eventually ATLAS).
- 
- CAN hardware & software: the Embedded Local Monitor Board (ELMB) is a general-purpose plug-on I/O module for the monitoring and control of subdetector front-end equipment. The ELMB is based on the industry standard CANbus and CANopen. The ELMB project is a collaboration between CERN, Nikhef and PNPI (St. Petersburg, Russia). The boards are used in all LHC experiments.
- 
- Hall effect sensors: the sensors have been developed by CERN and Nikhef and are based on  $\square$ D hall probes with the associated electronics. The sensors are calibrated for a range of magnetic  $\square$ elds up to 4.5 T. They are used in ATLAS, LHCb and CMS.
- 
- Mini-HV: development of a new range of mini-HV power supplies (1000 V, nA resolution), especially for use in laboratories and small scale experiments.
- 
- RooFit software: a toolkit for modeling the expected distribution of events in a physics analysis. Models can be used to perform likelihood  $\square$ ts, produce plots, and generate toy Monte Carlo samples for various studies. The RooFit tools are integrated with the object-oriented and interactive ROOT graphical environment.



## 2 Theses

2005

Alexander Adriaan Henneman  
Scale dependence of correlations on the light-front  
Vrije Universiteit Amsterdam, 2 February 2005  
Promotor: P.J.G. Mulders

Armen Laziev  
Quasi-real photo-production and semi-leptonic decay of  $D^+$  mesons  
Vrije Universiteit Amsterdam, 1 March 2005  
Promotor: J.F.J. van den Brand  
Copromotor: W.H.A. Hesselink

Freya Blekman  
Top quark pair production in proton anti-proton collisions  
Universiteit van Amsterdam, 1 April 2005  
Promotors: M.W.J.M. Demarteau, F.L. Linde  
Copromotor: M. Vreeswijk

Sander Klous  
LHCb: Vertex detector and read out chip, computing challenge and  $B_s \rightarrow J\psi\phi$  analysis  
Vrije Universiteit Amsterdam, 1 May 2005  
Promotor: J.F.J. van den Brand  
Copromotors: E. Jans, H.G. Raven

Alessandro Fornaini  
X-ray imaging and readout of a TPC with the Medipix CMOSASIC  
Universiteit Twente, 2 June 2005  
Promotor: B. van Eijk  
Copromotor: J.L. Visschers

Daniel Abraham Wijngaarden  
Angular correlations in beauty production at the Tevatron at  $\sqrt{s}=1.96$  TeV  
Radboud Universiteit Nijmegen, 22 June 2005  
Promotor: S.J. de Jong  
Copromotor: F. Filthaut

Maria Constance Bouwhuis  
Detection of neutrinos from gamma-ray bursts  
Universiteit van Amsterdam, 7 July 2005  
Promotor: K.J.F. Gaemers  
Copromotor: M. de Jong

Hernan Pablo Wahlberg  
Bottom Production at  $\sqrt{s}=41.6$  GeV  
Universiteit Utrecht, 7 September 2005  
Promotor: P.M. Kooijman  
Copromotor: Th. S. Bauer

Jeroen Ashwin Niels van Tilburg  
Track simulation and reconstruction in LHCb  
Vrije Universiteit Amsterdam, 11 October 2005  
Promotor: M.H.M. Merk

Vanessa Mexner  
Determination of the gluon polarization in the nucleon  
Universiteit van Amsterdam, 20 December 2005  
Promotor: G. van der Steenhoven  
Copromotor: W.H.A. Hesselink

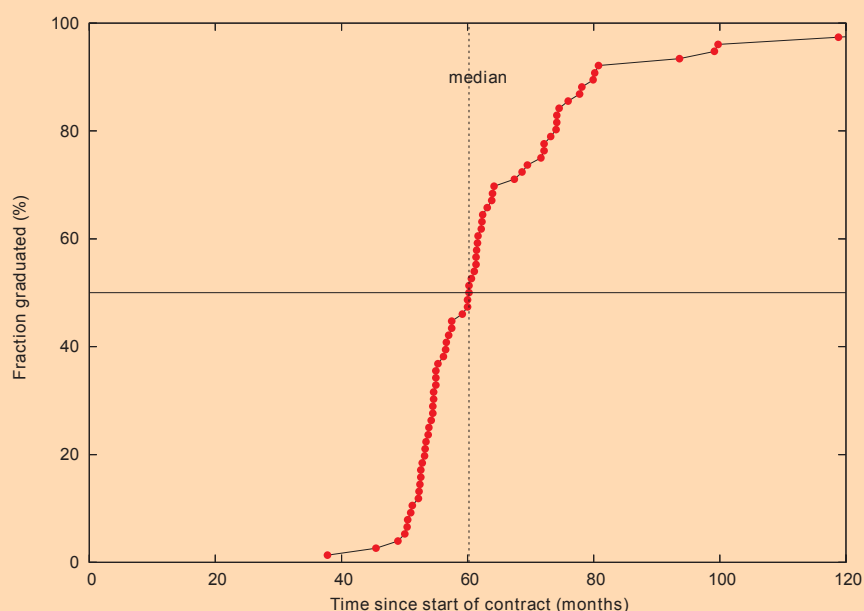


Figure 2.1. Duration (graduation date – start of contract date) of the PhD project for all Nikhef PhD students who graduated in the 2005–2010 review period. The median of this distribution is 60.2 months. The overall success rate is about 93%.

## 2006

Fetze Pijlman  
Single asymmetries and gauge invariance in hard scattering processes  
Vrije Universiteit Amsterdam, 10 January 2006  
Promotor: P.J.G. Mulders

Harmen Jakob Warringa  
Thermodynamics of QCD-inspired theories  
Vrije Universiteit Amsterdam, 28 February 2006  
Promotor: P.J.G. Mulders  
Copromotor: D. Boer

Oleksiy Sokolov  
Prototyping of Silicon Strip Detectors for the Inner Tracker of the ALICE Experiment  
Universiteit Utrecht, 24 April 2006  
Promotor: R. Kamermans  
Copromotor: G.J.L. Nooren

Martinus Gerardus van Beuzekom  
Identifying fast hadrons with silicon detectors  
Rijksuniversiteit Groningen, 19 May 2006  
Promotor: G. van der Steenhoven  
Copromotor: J.J.M. Steijger

Marcello Barisonzi  
Mass measurements of the top quark in electroweak production channels at ATLAS  
Universiteit Twente, 1 May 2006  
Promotor: B. van Eijk  
Copromotor: J.C. Vermeulen

Antonello Sbrizzi  
Beauty and a search for pentaquarks at HERA-B  
Vrije Universiteit Amsterdam, 16 June 2006  
Promotor: J.F.J. van den Brand  
Copromotor: Th. S. Bauer

Bram Antonius Philomena van Rens  
Detection of magnetic monopoles below the Cherenkov limit  
Universiteit van Amsterdam, 7 July 2006  
Promotor: P.M. Kooijman  
Copromotor: M. de Jong

Leonard Bart Anton Hommels  
The tracker in the trigger of LHCb  
Universiteit van Amsterdam, 18 October 2006  
Promotor: M.H.M. Merk  
Copromotor: N. Tuning

Thijs Gerrit Cornelissen  
Track fitting in the ATLAS experiment  
Universiteit van Amsterdam, 12 December 2006  
Promotor: F.L. Linde  
Copromotors: S.C.M. Bentvelsen, P.M. Kluit

## 2007

Max Arjen Baak  
Measurement of CKM-angle  $\gamma$  with charmed  $B^0$  meson decays  
Vrije Universiteit Amsterdam, 5 February 2007  
Promotor: J.F.J. van den Brand  
Copromotor: H.G. Raven

Niels van Eldik  
The ATLAS muon spectrometer: calibration and pattern recognition  
Universiteit van Amsterdam, 22 February 2007  
Promotor: F.L. Linde  
Copromotor: S.C.M. Bentvelsen

Michiel Demey  
The polarization of  $\Lambda^0$  hyperons in quasi-real photoproduction  
Universiteit van Amsterdam, 16 March 2007  
Promotor: G. van der Steenhoven  
Copromotor: J.J.M. Steijger

Achilleas Lazopoulos  
Developments in quantum chromodynamics and quasi Monte Carlo  
Radboud Universiteit Nijmegen, 26 March 2007  
Promotor: R.H.P. Kleiss,  
Copromotor: C.G. Papadopoulos

Andreas Johannes Reischl  
Quasi-real photo-production of hyperons and their impact on  $\Lambda^0$  polarization measurements  
Universiteit van Amsterdam, 1 April 2007  
Promotor: G. van der Steenhoven  
Copromotor: J.J.M. Steijger

Garmt de Vries-Uiterweerd  
Signal and background in the underwater neutrino telescope ANTARES  
Universiteit Utrecht, 8 May 2007  
Promotor: P.M. Kooijman

Tim Pieter Tjipko Dijkstra  
Supersymmetric Standard Model spectra from RCFT orientifolds  
Radboud Universiteit Nijmegen, 11 June 2007  
Promotor: A.N.J.J. Schellekens

Johannes Wilhelmus Edmond Uiterwijk  
Detection and reconstruction of short-lived particles produced by neutrino interactions in emulsion  
Universiteit Leiden, 12 June 2007  
Promotor: M. de Jong  
Copromotor: J. Panman

Paul Bastiaan van der Nat  
Transversity in two-hadron fragmentation  
Vrije Universiteit Amsterdam, 5 September 2007  
Promotor: G. van der Steenhoven  
Copromotor: L. Lapikás

Hylke Bernd Jan Koers  
The Astrophysical Herald: Neutrinos as probes for particle physics and astronomy  
Universiteit van Amsterdam, 21 September 2007  
Promotors: K.J.F. Gaemers, R.A.M. Wijers

Cedran Jbnathan Bomhof  
Azimuthal spin asymmetries in hadronic processes  
Vrije Universiteit Amsterdam, 1 October 2007  
Promotor: P.J.G. Mulders

Jacopo Nardulli  
Reconstruction of two-body B decays in LHCb  
Vrije Universiteit Amsterdam, 4 October 2007  
Promotores: J.F.J. van den Brand, M. Merk

Johan Hendrik Rutger Schrader  
Wireline equalization using pulse-width modulation  
Universiteit Twente, 11 October 2007  
Promotor: B. Nauta  
Copromotor: E.A.M. Klumperink

Yuting Bai  
Anisotropic flow measurements in STAR at the relativistic heavy ion collider  
Universiteit Utrecht, 29 October 2007  
Promotor: Th. Peitzmann  
Copromotor: R.J.M. Snellings

Oleksandr Grebenyuk  
Neutral meson production in d+Au and p+p collisions at  $\sqrt{s_{NN}} = 200$  GeV in STAR  
Universiteit Utrecht, 29 November 2007  
Promotor: Th. Peitzmann  
Copromotor: M.A.J. Botje

Andrea Fuster  
Kundt spacetimes in general relativity and supergravity  
Vrije Universiteit Amsterdam, 6 December 2007  
Promotor: J.W. van Holten

**2008**  
Ytsen Ronald de Boer  
Measurement of single W boson production in ep scattering  
Universiteit Twente, 10 January 2008  
Promotor: B. van Eijk  
Copromotor: C. Diaconu

Patrick Motylinski  
Single top production aspects of perturbative QCD  
Universiteit van Amsterdam, 25 January 2008  
Promotor: E.L.M.P. Laenen

Carmen Miruna Anăstăsoaie  
A search for  $W^+H \rightarrow \nu_{\tau} b\bar{b}$  production at the Tevatron  
Radboud Universiteit Nijmegen, 6 February 2008  
Promotor: S.J. de Jong  
Copromotor: F. Filthaut

Ronald Bruijn  
The ANTARES Neutrino Telescope: Performance studies and analysis of first data  
Universiteit van Amsterdam, 19 March 2008  
Promotores: P.M. Kooijman, M. de Jong

Jana Montenegro Ferreira  
Measurement of the W mass using semi-leptonic events at LEP  
Radboud Universiteit Nijmegen, 20 March 2008  
Promotor: N. de Groot  
Copromotor: J Timmermans

Tiberiu Gabriel Grigorescu  
Measurement of charm production in deep inelastic scattering at HERA II  
Universiteit van Amsterdam, 28 March 2008  
Promotores: E. Koffeman, P. Kooijman

Martinus Johannes Russcher  
Direct photon measurement in proton-proton and deuteron-gold collisions  
Universiteit Utrecht, 15 April 2008  
Promotor: T. Peitzmann  
Copromotor: A. Mischke

Em anuele Lorenzo Simili  
Elliptic flow measurements at ALICE  
Universiteit Utrecht, 16 June 2008  
Promotor: R. Kamermans  
Copromotor: P.G. Kuijjer

Cristina Florina Galea  
Measurement of  $\sigma(p\bar{p} \rightarrow Z)\text{-Br}(Z \rightarrow \tau^+\tau^-)$  and search for Higgs bosons decaying to  $\tau^+\tau^-$  at  $\sqrt{s}=1.96$  TeV  
Radboud Universiteit Nijmegen, 25 June 2008  
Promotor: S.J. de Jong

Mark Okker de Kok  
Broken symmetries in field theory  
Universiteit Leiden, 26 June 2008  
Promotores: P.J. van Baal, J.W. van Holten  
Copromotor: F. Bruckmann

Tamás Novák  
Bose-Einstein Correlations in  $e^+e^-$  Annihilation  
Radboud Universiteit Nijmegen, 4 September 2008  
Promotores: E.W. Kittel, T. Csörgő  
Copromotor: W.J. Metzger

Qin Wang  
Inter-string Bose-Einstein Correlations in Hadronic Z Decays using the L3 Detector at LEP  
Radboud Universiteit Nijmegen, 4 September 2008  
Promotor: E.W. Kittel  
Copromotor: W.J. Metzger

Fedeica Bencedosso  
Two particle azimuthal correlation in d+Au and p+p collision at  $\sqrt{s_{NN}}=200$  GeV in STAR  
Universiteit Utrecht, 8 September 2008  
Promotor: T. Peitzmann  
Copromotor: A. Mischke

Jeroen Dreschler  
Transverse target-spin asymmetry in exclusive electroproduction of  $p^0$  mesons  
Vrije Universiteit Amsterdam, 7 October 2008  
Promotor: G. van der Steenhoven  
Copromotor: H.P. Blok

Peter Hristoforov Vankov  
Study of the B-meson lifetime and the performance of the outer tracker at LHCb  
Vrije Universiteit Amsterdam, 5 November 2008  
Promotor: J.F.J. van den Brand  
Copromotor: A. Pellegrino, H.G. Raven

Miran Djordjevic  
The Integrated Pixel Tracker: readout and tests of the MIMOSA V pixel sensor  
Radboud Universiteit Nijmegen, 26 November 2008  
Promotors: S.J. de Jong, M. Pohl

2009  
Maximilien Alexandre Chefdeville  
Development of Micromegas-like gaseous detectors using a pixel readout chip as collecting anode  
Universiteit van Amsterdam, 15 January 2009  
Promotor: J. Schmitz  
Copromotor: P. Colas

Jeroen Guido Hegeman  
Measurement of the top quark pair production cross section in pp collisions at  $\sqrt{s} = 1.96$  TeV: Hadronic top decay with the DØ detector  
Universiteit Twente, 16 January 2009  
Promotor: B. van Eijk

Marcel van Kessel  
The Path-Integral Approach to Spontaneous Symmetry Breaking  
Radboud Universiteit Nijmegen, 11 February 2009  
Promotors: R. Kleiss, E.N. Argyres

Pieter Jhannes van den Berg  
Search for heavy resonances in the dimuon channel with the DØ detector  
Universiteit van Amsterdam, 24 February 2009  
Promotor: S.C.M. Bentvelsen  
Copromotor: P.J. de Jong

Claudine Marie Marguerite Colnard  
Ultra-high energy neutrino simulations  
Universiteit van Amsterdam, 16 April 2009  
Promotor: G. van der Steenhoven  
Copromotor: E. de Wolf

Hella Leonie Snoek  
Suppressed charmed B decays  
Vrije Universiteit Amsterdam, 2 June 2009  
Promotor: J.F.J. van den Brand  
Copromotor: H.G. Raven

Pieter Willem Huib Houben  
A measurement of the mass of the top quark using the ideogram technique  
Universiteit van Amsterdam, 11 June 2009  
Promotors: M.W.J.M. Demarteau, F.L. Linde  
Copromotor: M. Vreeswijk

Caroline Alexandra Magrath  
The heart of ATLAS: Commissioning and performance of the ATLAS silicon tracker  
Radboud Universiteit Nijmegen, 12 June 2009  
Promotors: E.N. Koffeman, N. de Groot

Gustavo Ordóñez Sanz  
Muon Identification in the ATLAS Calorimeters  
Radboud Universiteit Nijmegen, 12 June 2009  
Promotor: N. de Groot  
Copromotor: P. Kluit

Erik Aras Papadelis  
Characterisation and commissioning of the LHCb VELO detector  
Vrije Universiteit Amsterdam, 17 June 2009  
Promotor: M.H.M. Merk  
Copromotor: E. Jans

Erik Wessels  
Signatures of gluon saturation in high energy scattering  
Vrije Universiteit Amsterdam, 17 June 2009  
Promotor: P.J.G. Mulders  
Copromotor: D. Boer

Jan-Willem Wagenaar  
Pion-Nucleon Scattering in Kadyshevsky Formalism and Higher Spin Field Quantization  
Radboud Universiteit Nijmegen, 10 July 2009  
Promotor: R. Kleiss  
Copromotor: T.A. Rijken

Maike Limper  
Track and vertex reconstruction in the ATLAS inner detector  
Universiteit van Amsterdam, 12 October 2009  
Promotor: S.C.M. Bentvelsen  
Copromotor: A.P. Colijn

Jchem Snuverink  
The ATLAS muon spectrometer: commissioning and tracking  
Universiteit Twente, 16 October 2009  
Promotors: B. van Eijk, F.L. Linde  
Copromotor: P.M. Kluit

David San Segundo Bello  
Spectroscopic quantum imaging using pixel-level adcs in semiconductor-based hybrid pixel detectors  
Universiteit Twente, 10 September 2009  
Promotor: B. Nauta  
Copromotor: J.L. Visschers

Gerben Cornelis Stavenga  
Soft radiation in quantum chromodynamics  
Universiteit Utrecht, 14 September 2009  
Promotor: E.M.L.P. Laenen

Cristian George Ivan  
Open charm analysis with the ALICE detector in pp collisions at LHC  
Universiteit Utrecht, 10 November 2009  
Promotor: R. Kamermans  
Copromotores: P.G. Kuijjer, M. van Leeuwen

Erik Eise van der Kraaij  
First top quark physics with ATLAS – a prospect  
Universiteit van Amsterdam, 4 December 2009  
Promotor: S.C.M. Bentvelsen  
Copromotor: P.J.de Jong

2010

Edwin Bos  
Reconstruction of charged particles in the LHCb experiment  
Vrije Universiteit Amsterdam, 10 February 2010  
Promotor: M.H.M. Merk  
Copromotor: H.G. Raven

Gabriel Ybeles Smit  
Asymmetries in the decay of beauty  
Vrije Universiteit Amsterdam, 20 February 2010  
Promotors: M.H.M. Merk, J.F.J. van den Brand  
Copromotor: H.J. Bulten

Eduard Ebron Simioni  
New physics from rare beauty  
Vrije Universiteit Amsterdam, 1 March 2010  
Promotor: M.H.M. Merk  
Copromotores: A. Pellegrino, W.D. Hulsbergen

Zdenko van Kesteren  
Identification of muons in ATLAS  
Universiteit van Amsterdam, 12 March 2010  
Promotor: S. Bentvelsen  
Copromotor: P.M. Kluit

Lucian-Stefan Ancu  
A search for  $ZH \rightarrow \mu\mu b\bar{b}$  production at the Tevatron  
Radboud Universiteit Nijmegen, 20 April 2010  
Promotor: S.Jde Jong  
Copromotor: F. Filthaut

Jörn Kerst Boomsma  
Effects of instanton interactions on the phases of quark matter  
Vrije Universiteit Amsterdam, 17 June 2010  
Promotor: P.J.G. Mulders  
Copromotor: D. Boer

Martijn Gosselink  
Radiating top quarks  
Universiteit van Amsterdam, 14 October 2010  
Promotor: E.N. Koffeman  
Copromotor: A.P. Colijn

Tristan Arnoldus du Pree  
Search for a strange phase in beautiful oscillations  
Vrije Universiteit Amsterdam, 22 October 2010  
Promotor: M.H.M. Merk  
Copromotor: H.G. Raven

|                     | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | Total |
|---------------------|------|------|------|------|------|------|-------|
| ATLAS               | 2    | 2    | 1    | 2    | 8    | 0    | 18    |
| LHCb                | 0    | 0    | 2    | 1    | 2    | 4    | 15    |
| ALICE               |      | 1    | 2    | 0    | 1    |      | 7     |
| Neutrino Telescopes | 1    | 1    | 1    | 1    | 1    |      | 5     |
| Gravitational Waves |      |      |      |      |      |      |       |
| Cosmic Rays         |      |      |      |      |      |      |       |
| Theoretical Physics | 1    | 2    | 5    | 2    | 4    | 1    | 15    |
| Detector R&D        | 1    |      | 1    | 1    | 2    |      | 5     |
| Grid Computing      |      |      |      |      |      |      |       |
| ZEUS                |      |      |      | 1    |      |      | 1     |
| HERMES              | 2    |      | 0    |      |      |      | 5     |
| Miscellaneous       |      |      | 1    | 5    |      |      | 6     |
| Total               | 10   | 9    | 16   | 16   | 18   | 8    | 77    |

Table 2.1.  
Number of PhD theses  
produced per programme  
and per year.



## 3 Publications

|                     | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | Total |
|---------------------|------|------|------|------|------|------|-------|
| ATLAS               | 5    | 0    | 8    | 66   | 51   | 76   | 296   |
| LHCb                | 57   | 71   | 7    | 66   | 54   | 42   | 363   |
| ALICE               | 6    | 5    | 26   | 16   | 28   |      | 174   |
| Neutrino Telescopes |      | 4    | 4    | 4    | 5    | 8    | 28    |
| Gravitational Waves |      |      | 6    | 14   | 4    | 19   | 43    |
| Cosmic Rays         |      |      |      | 4    | 4    | 10   | 21    |
| Theoretical Physics | 19   | 25   | 26   | 28   | 40   | 67   | 205   |
| Detector R&D        | 4    | 9    | 8    |      | 10   | 5    | 39    |
| Grid Computing      | 4    |      | 2    | 4    | 2    | 2    | 17    |
| ZEUS                | 10   | 2    | 2    | 7    | 1    | 11   | 66    |
| HERMES              | 6    | 6    | 6    | 5    | 4    | 9    | 36    |
| Miscellaneous       |      | 41   | 22   | 15   | 25   | 8    | 144   |
| Total               | 207  | 226  | 237  | 232  | 240  | 290  | 1432  |

Table 3.1.  
Number of publications  
(incl. conference proceedings)  
produced per programme and  
per year.

### 3.1 Physics at the TeV scale: ATLAS

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Nucl. Instr. Meth. A552 (2005) 292-328

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Hessey, N.P.; Jong, P. de; Koffeman, E.; Kraaij, E. van der; Limper,  
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Jong, E. Koffeman, E. van der Kraaij, M. Limper, C.A. Magrath,  
A.J.M. Muijs, S.J.M. Peeters, I. van Vulpen  
The ATLAS semiconductor tracker end-cap module  
Nucl. Instr. Meth. A 575 (2007) 15



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Eur. Phys. J C 70 (2010) 755

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Eur. Phys. J C 70 (2010) 787

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Commissioning of the ATLAS high-level trigger with single LHC beam and cosmic rays  
IEEE Trans. Nucl. Sci. 57 (2010) 566

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J Instr. 5 (2010) C12011

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J Instr. 5 (2010) C12050

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J Phys.: Conf. Series 219 (2010) 022006

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J Phys.: Conf. Series 219 (2010) 022017

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J Phys.: Conf. Series 219 (2010) 022021

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J Phys.: Conf. Series 219 (2010) 022024

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Nucl. Instr. Meth. A 617 (2010) 1

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Nucl. Instr. Meth. A 617 (2010) 411

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Nucl. Instr. Meth. A 623 (2010) 056

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Nucl. Instr. Meth. A 623 (2010) 094

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Nucl. Instr. Meth. A 623 (2010) 522

Commissioning of the ATLAS Level-1 central trigger system  
Nucl. Instr. Meth. A 623 (2010) 552

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Nucl. Instr. Meth. A 623 (2010) 555

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Measurement of the branching fraction and photon energy moments of  $B \rightarrow X_{\text{sig}} \gamma$  and  $A_{\text{CP}}(B \rightarrow X_{\text{sig}} \gamma)$   
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Phys. Rev. Lett. 97 (2006) 201801

Measurement of branching fractions and charge asymmetries in B decays to an  $\eta$  meson and a  $K^*$  meson  
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Measurement of the  $\bar{B}$  lifetime and the  $B^0\bar{B}^0$  oscillation frequency using partially reconstructed  $B^0 \rightarrow D^{*+} \ell^- \bar{\nu}_\ell$  decays  
Phys. Rev. D73 (2006) 012004

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Measurements of neutral B decay branching fractions to  $K_S^0 \pi^+ \pi^-$  final states and the charge asymmetry of  $B^0 \rightarrow K^{*+} \pi^-$   
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Phys. Rev. D73 (2006) 071102

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Phys. Rev. D 79 (2009) 051101

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Observation of the  $\chi_{c0}(2P)$  meson in the reaction  $\gamma\gamma \rightarrow DD$  at BABAR  
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Observation of the rare decay  $B^0 \rightarrow K_S^0 K^{\pm} \pi^{\mp}$   
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Observation of the decay  $B^0 \rightarrow \Lambda_c^+ \bar{p} \pi^0$   
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Study of  $B \rightarrow X \gamma$  decays and determination of  $|V_{td}/V_{ts}|$   
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Observation of new resonances decaying to  $D\pi$  and  $D^*\pi$  in inclusive  $e^+e^-$  collisions near  $\sqrt{s} = 10.58$  GeV  
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Observation of the  $Y(1^3D_1)$  bottomonium state through decays to  $\pi^+ \pi^- Y(1S)$   
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## 3.3 Relativistic heavy-ion physics: ALICE

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Identified baryon and meson distributions at large transverse momenta from Au+Au collisions at  $\sqrt{s_{NN}}=200$  GeV  
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Forward  $\Lambda$  production and nuclear stopping power in d+Au collisions at  $\sqrt{s_{NN}} = 200$  GeV  
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Energy dependence of  $\pi^+$ , p and  $\bar{p}$  transverse momentum spectra for Au+Au collisions at  $\sqrt{s_{NN}}=62.4$  and 200 GeV  
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Azimuthal charged-particle correlations and possible local strong parity violation  
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Phys. Rev. C 79 (2009) 024906

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Phys. Rev. C 79 (2009) 044909

Measurements of  $\phi$  meson production in relativistic heavy-ion collisions at the BNL Relativistic Heavy Ion Collider (RHIC)  
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Pion interferometry in Au+Au and Cu+Cu collisions at  $\sqrt{s_{NN}} = 62.4$  and 200 GeV  
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Measurement of  $D^*$  mesons in jets from p+p collisions at  $\sqrt{s} = 200$  GeV  
Phys. Rev. D 79 (2009) 112006

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Longitudinal double-spin asymmetry and cross section for inclusive neutral pion production at midrapidity in polarized proton collisions at  $\sqrt{s} = 200$  GeV  
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Energy and system size dependence of  $\phi$  meson production in Cu+Cu and Au+Au collisions  
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STAR Collaboration: B.I. Abelev (et al.); M.M. Aggarwal (et al.), F. Benuoso, M. Botje, E. Braidot, M. van Leeuwen, A. Mischke, T. Peitzmann, M.J. Russcher  
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Identified particle production, azimuthal anisotropy, and interferometry measurements in Au+Au collisions at  $\sqrt{s_{NN}} = 9.2$  GeV  
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Observation of  $\pi^+\pi^-\pi^+\pi^-$  photoproduction in ultra-peripheral heavy ion collisions at  $\sqrt{s_{NN}} = 200$  GeV at the STAR detector  
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Production of  $\phi$  mesons at mid-rapidity in  $\sqrt{s_{NN}} = 200$  GeV Au+Au collisions at RHIC  
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Mid-rapidity direct-photon production in p+p collisions at  $\sqrt{s} = 200$  GeV  
Phys. Rev. D 71 (2005) 071102

Measurement of single electron event anisotropy in Au+Au collisions at  $\sqrt{s_{NN}} = 200$  GeV  
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Centrality dependence of direct photon production in  $\sqrt{s_{NN}} = 200$  GeV Au+Au collisions  
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Measurement of transverse single-spin asymmetries for mid-rapidity production of neutral pions and charged hadrons in polarized p+p collisions at  $\sqrt{s} = 200$  GeV  
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PHENIX Collaboration: Adams, J. (et al.), Peitzmann, T.  
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Nuclear modification of electron spectra and implications for heavy quark energy loss in Au+Au collisions at  $\sqrt{s_{NN}} = 200$  GeV  
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NA49 Collaboration: Alt, C. (et al.), Botje, M.; Mischke, A.  
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NA57 Collaboration: Antinori, F. (et al.), Kamer mans, R.; Kuijer, P.;  
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Mischke, A.  
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Phys. Rev. C73 (2006) 044910

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NA49 Collaboration: C. Alt (et al.); M. Botje, M.A. van Leeuwen,  
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Centrality and system size dependence of multiplicity fluctuations in  
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Rapidity and energy dependence of the electric charge correlations in  
A+A collisions from 20A to 158A GeV  
Phys. Rev. C 76 (2007) 024914

NA57 Collaboration: F. Antinori (et al.); R. Kamer mans, P. Kuijer,  
E. Schillings, P. van de Ven  
Expansion dynamics of Pb-Pb collisions at 40A GeV/c viewed by  
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WA89 Collaboration: M.I. Adamovich (et al.); C. Scheel  
Observation of a resonance in the  $K_S^0 p$  decay channel at a mass of 1765  
MeV/c<sup>2</sup>  
Eur. Phys. J C 50 (2007) 505

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Eur. Phys. J C 52 (2007) 857

WA98 Collaboration: M.M. Aggarwal (et al.), F.J.M. Geurts, R.  
Kamer mans, T. Peitzmann, E.C. van der Pijll, N. van Eijndhoven  
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NA49 Collaboration: C. Alt (et al.); M. Botje, M. van Leeuwen,  
A. Mischke  
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30A GeV: Evidence for the onset of deconfinement  
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High transverse momentum hadron spectra at  $\sqrt{s_{NN}}=17.3$  GeV in Pb+Pb  
and p+p collisions  
Phys. Rev. C 77 (2008) 044906

Bose-Einstein correlations of  $\pi\pi\pi$  pairs in central Pb+Pb collisions at  
20A,30A,40A,80A, and 158A GeV  
Phys. Rev. C 77 (2008) 064908

Energy dependence of multiplicity fluctuations in heavy ion collisions at  
20A to 158A GeV  
Phys. Rev. C 78 (2008) 044914

Energy dependence of  $\Lambda$  and  $\Xi$  production in central Pb+Pb collisions at 20A,30A,40A,80A, and 158A GeV measured at the CERN Super Proton Synchrotron  
Phys. Rev. C 78 (2008) 044918

Energy dependence of  $\phi$  meson production in central Pb+Pb collisions at  $\sqrt{s_{NN}}=6$  to 17 GeV  
Phys. Rev. C 78 (2008) 044907

WA98 Collaboration: M.M. Aggarwal (et al.); N.J.A.M. van Eijndhoven, F.J.M. Geurts, R. Kamermans, T. Peitzmann, E.C. van der Pijl  
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Phys. Rev. Lett. 100 (2008) 242001

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NA49 Collaboration: T. Anticic (et al.); M. Botje, P. Christakoglou, M.A. van Leeuwen, A. Mischke  
Energy dependence of transverse momentum fluctuations in Pb+Pb collisions at the CERN Super Proton Synchrotron (SPS) at 20A to 158A GeV  
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System-size dependence of  $\Xi$  and  $\Lambda$  production in nucleus-nucleus collisions at 40A and 158A GeV measured at the CERN Super Proton Synchrotron  
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Energy dependence of particle ratio fluctuations in central Pb+Pb collisions from  $\sqrt{s_{NN}} = 6.3$  to 17.3 GeV  
Phys. Rev. D 79 (2009) 044910

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NA57 Collaboration: F. Antinori (et al.), R. Kamermans, P.G. Kuijjer, E. Schillings, P. van de Ven  
Strangeness enhancements at central rapidity in 40A GeV/c Pb-Pb collisions  
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NA49 Collaboration: C. Alt (et al.); T. Anticic (et al.), M. Botje, P. Christakoglou, M.A. van Leeuwen

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Centrality dependence of proton and antiproton spectra in Pb+Pb collisions at 40A GeV and 158A GeV measured at the CERN Super Proton Synchrotron  
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Three-dimensional two-pion source image from Pb+Pb collisions at  $\sqrt{s_{NN}} = 17.3$  GeV: new constraints for source breakup dynamics  
Phys. Lett. B 685 (2010) 41

## 3.4 Neutrino telescopes: ANTARES/KM3NeT

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ANTARES Collaboration: Aguilar, J.A. (et al.), Bouwhuis, M.C.; Bruijn, R.; Colnard, C.; Dantzig, R. van; Engelen, J.J.; Heijboer, K.A.; Jong, M. de; Kooijman, P.M.; Nooren, G.J.; Rens, B.A.P. van; Vries, G. de; Witt Huberts, P.K.A. de; Wolf, E. de  
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Nuovo Cimento C28 (2005) 805-808

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ANTARES Collaboration: Aguilar, J.A. (et al.), Bouwhuis, M.C.; Bruijn, R.; Colnard, C.; Dantzig, R. van; Heijboer, A.; Jaspers, M.; Jong, M. de; Kok, H.; Kooijman, P.; Kruijjer, A.; Lim, G.; Peek, H.; Randwijk, J. van; Rens, B. van; Rewiersma, P.; Steenhoven, G. van der; Venekamp, G.; Verlaat, B.; Vries, G. de; Wijk, R. van; Witt Huberts, P. de; Wolf, E. de  
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Nucl. Instr. Meth. A 567 (2006) 508

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M. Chefdeville

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Nucl. Instr. Meth. A 604 (2009) 5

GridPix/Gossip Group: H. van der Graaf  
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Nucl. Instr. Meth. A 610 (2009) 644

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Mining performance data for metascheduling decision support in the Grid  
Future Generation Comp. Syst. 23 (2007) 92

Y. Demchenko (et al.), D. Groep, O. Koeroo  
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D. Groep, O. Koeroo, G. Venekamp  
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J Phys.: Conf. Series 219 (2010) 062014

D.C. Vanderster (et al.), H.C. Lee  
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J Phys.: Conf. Series 219 (2010) 072022

## 3.10 Completed programmes & miscellaneous

### Nucleon dynamics: AmPS (completed)

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Comparison between the transverse responses of the reactions  $^{12}\text{C}(e,e'p)^{11}\text{B}$  and  $^{12}\text{C}(\gamma p)^{11}\text{B}$   
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Barbieri, C.; Rohe, D.; Sick, I.; Lapikás, L.  
Effect of kinematics on  $\Delta$  state interactions in  $(e,e'p)$  reactions  
Phys. Lett. B608 (2005) 47

Steenbakkens, M.F.M.; Batenburg, M.F. van; Bauer, Th.S.; Blok, H.P.; Botto, T.; Dodge, G.E.; Groep, D.L.; Heimberg, P.; Hesselink, W.H.A.; Higinbotham, D.W.; Jans, E.; Jun, Y.; Ketel, T.J.; Lapikás, L.; Lange, D.J.J. de; Norum, B.E.; Passchier, I.; Starink, R.; Todor, L.; Vries, H. de  
Quasifree  $\pi^0$  and  $\pi^-$  electroproduction on  $^4\text{He}$  in the  $\Delta$ -resonance region  
Phys. Rev. Lett. 95 (2005) 172501

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Jefferson Lab  $\pi$  Collaboration: Horn, T. (et al.), Blok, H.P.; Tvaskis, V.  
Determination of the pion charge form factor at  $Q^2 = 1.60$  and  $2.45$   $(\text{GeV}/c)^2$   
Phys. Rev. Lett. 97 (2006) 192001

Krasznahorkay, A. (et al.), Boer, F.W.N. de; Ketel, T.J.; Klincken, J van  
Lepton pairs from a forbidden  $M0$  transition: Signaling an elusive light neutral boson?  
Acta Phys. Polon. B37 (2006) 2:9

Middleton, D. (et al.), Blok, H.J.; Hesselink, W.H.A.; Jans, E.; Lapikás, L.; Vries, H. de; Zihlmann, B.  
First measurements of the  $^{16}\text{O}(e, e'pn)^{14}\text{N}$  reaction  
Eur. Phys. J A29 (2006) 261 erratum Eur. Phys. J A30 (2006) 469

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C.B. Crawford (et al.), J.F.J. van den Brand  
Measurement of the proton's electric to magnetic form factor ratio from  $^1\text{H}(\vec{e}^+, e'p)$   
Phys. Rev. Lett. 98 (2007) 052001

I.A. Rachek (et al.), H. de Vries  
Measurement of tensor analyzing powers in deuteron photodisintegration  
Phys. Rev. Lett. 98 (2007) 182000

V. Tadevosyan (et al.), H.P. Blok, J. Volmer  
Determination of the pion charge form factor for  $Q^2=0.60-1.60$   $\text{GeV}^2$   
Phys. Rev. C 75 (2007) 055205

R. Shneor (et al.), E. Jans  
Investigation of proton-proton short-range correlations via the  $^{12}\text{C}(e,e'pp)$  reaction  
Phys. Rev. Lett. 99 (2007) 072501

M. Iodice (et al.), D.L. Groep, W.H.A. Hesselink, E. Jans, L. Lapikás, C.J.G. Onderwater, R. Starink  
 $^{16}\text{O}(e,e'p)$  reaction at large missing energy  
Phys. Lett. B 653 (2007) 092

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 $^3\text{He}(e,e'pp)$  and  $^3\text{He}(e,e'pn)$  reactions at AmPS and MAMI  
Few-Body Systems 44 (2008) 171

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Charged pion form factor between  $Q^2=0.60$  and  $2.45$   $\text{GeV}^2$ . I.  
Measurements of the cross section for the  $^1\text{H}(e,e'\pi^+)n$  reaction  
Phys. Rev. C 78 (2008) 045202

G.M. Huber (et al.), H.P. Blok, V. Tvaskis  
Charged pion form factor between  $Q^2=0.60$  and  $2.45$   $\text{GeV}^2$ . II.  
Determination of, and results for, the pion form factor  
Phys. Rev. C 78 (2008) 045200

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D.G. Middleton (et al.), H.P. Blok, W.H.A. Hesselink, E. Jans, L. Lapikás, H. de Vries, B. Zihlmann  
Investigation of the exclusive  $^3\text{He}(e,e'pn)^1\text{H}$  reaction  
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D.M. Nikolenko (et al.), H. de Vries  
Experiments with internal targets at the VEPP-3 electron storage ring  
Phys. At. Nucl. 73 (2010) 1022

D.M. Nikolenko (et al.), H. de Vries  
Two-photon exchange and elastic scattering of electrons/positrons on the proton  
Proc. of Science ICHEP (2010) 164

### Precision electroweak physics at LEP: DELPHI (completed)

2005

DELPHI Collaboration: Blom, H.M.; Kluit, P.; Montenegro, J.; Mulders, M.; Reid, D.; Timmermans, J.; Dam, P. van  
Coherent Soft Particle Production in Z Decays into Three Jets  
Phys. Lett. B605 (2005) 07

Photon Events with Missing Energy in  $e^+e^-$  Collisions at  $\sqrt{s}=130$  to  $209$   $\text{GeV}$   
Eur. Phys. J C38 (2005) 095

Measurement of the energy dependence of hadronic jet rates and the strong coupling  $\alpha_s$  from the four-jet rate with the DELPHI detector at LEP  
Eur. Phys. J C38 (2005) 410

Determination of  $A_{FB}^b$  at the Z pole using inclusive charge reconstruction and lifetime tagging  
Eur. Phys. J C40 (2005) 1

Flavour Independent Searches for Hadronically Decaying Neutral Higgs Bosons  
Eur. Phys. J C44 (2005) 147

Bose-Einstein Correlations in  $W^+W^-$  events at LEP2  
Eur. Phys. J C44 (2005) 161

Production of  $\Xi_c^0$  and  $\Xi_c^-$  in Z decays and lifetime measurement of  $\Xi_c^-$   
Eur. Phys. J C44 (2005) 299

Charged Partide multiplicity in Three-Jet Events and Two-Gluon Systems  
Eur. Phys. J C44 (2005) 11

#### 2006

DELPHI Collaboration: Abdallah, J (et al.), Blom, H.M.; Dam, P. van; Kluit, P.; Montenegro, J.; Mulders, M.; Reid, D.; Timmermans, J  
Determination of heavy quark non-perturbative parameters from spectral moments in semileptonic B decays  
Eur. Phys. J C45 (2006) 5

Single intermediate vector boson production in  $e^+e^-$  collisions at  $\sqrt{s} = 183-209$  GeV  
Eur. Phys. J C45 (2006) 17

Measurement and interpretation of fermion-pair production at LEP energies above the Z resonance  
Eur. Phys. J C45 (2006) 589

A measurement of the  $\tau$  hadronic branching ratios  
Eur. Phys. J C46 (2006) 1

Search for excited leptons in  $e^+e^-$  collisions at  $\sqrt{s} = 189-209$  GeV  
Eur. Phys. J C46 (2006) 277

A determination of the centre-of-mass energy at LEP2 using radiative two-fermion events  
Eur. Phys. J C46 (2006) 295

Study of double-tagged  $\gamma\gamma$  events at LEP1  
Eur. Phys. J C46 (2006) 559

Determination of the b quark mass at the  $M_Z$  scale with the DELPHI detector at LEP  
Eur. Phys. J C46 (2006) 569

Evidence for an excess of soft photons in hadronic decays of  $Z^0$   
Eur. Phys. J C47 (2006) 27

Search for  $\eta_b$  in two-photon collisions at LEP II with the DELPHI detector  
Phys. Lett. B634 (2006) 40

Masses, lifetimes and production rates of  $\Xi^-$  and  $\Xi^+$  at LEP 1  
Phys. Lett. B639 (2006) 179

Study of leading hadrons in gluon and quark fragmentation  
Phys. Lett. B643 (2006) 147

ALEPH, DELPHI, L3, OPAL and SLD Collaborations; LEP Electroweak Working Group; SLD Electroweak and Heavy Flavour Groups  
Search for neutral MSSM Higgs bosons at LEP  
Eur. Phys. J C47 (2006) 547

Precision electroweak measurements on the Z resonance  
Phys. Rep. 427 (2006) 257

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DELPHI Collaboration: J Abdallah (et al.); H.M. Blom, P. van Dam, P. Kluit, J Montenegro, M. Mulders, D. Reid, J Timmermans  
Study of multi-muon bundles in cosmic ray showers detected with the DELPHI detector at LEP  
Astropart. Phys. 28 (2007) 27

Search for a fourth generation b'-quark at LEP-II at  $\sqrt{s} = 196-209$  GeV  
Eur. Phys. J C 50 (2007) 507

Investigation of colour reconnection in WW events with the DELPHI detector at LEP-2  
Eur. Phys. J C 51 (2007) 249

$Z\gamma^*$  production in  $e^+e^-$  interactions at  $\sqrt{s} = 183-209$  GeV  
Eur. Phys. J C 51 (2007) 50

Study of Triple-Gauge-Boson Couplings ZZZ, ZZ $\gamma$  and Z $\gamma\gamma$  at LEP  
Eur. Phys. J C 51 (2007) 525

Search for pentaquarks in the hadronic decays of the Z boson with the DELPHI detector at LEP  
Phys. Lett. B 653 (2007) 151

#### 2008

DELPHI Collaboration: J Abdallah (et al.); H.M. Blom, P. van Dam, P. Kluit, J Montenegro, M. Mulders, D. Reid, J Timmermans  
Higgs boson searches in CP-conserving and CP-violating MSSM scenarios with the DELPHI detector  
Eur. Phys. J C 54 (2008) 1-15 erratum 56 (2008) 165

Study of W-boson polarisations and triple gauge boson couplings in the reaction  $e^+e^- \rightarrow W^+W^-$  at LEP 2  
Eur. Phys. J C 54 (2008) 45

Measurement of the mass and width of the W boson in  $e^+e^-$  collisions at  $\sqrt{s}=161-209$  GeV  
Eur. Phys. J C 55 (2008) 001

Study of b-quark mass effects in multijet topologies with the DELPHI detector at LEP  
Eur. Phys. J C 55 (2008) 525

Observation of the muon inner bremsstrahlung at LEP1  
Eur. Phys. J C 57 (2008) 499

Di-jet production in  $\gamma\gamma$  collisions at LEP2  
Eur. Phys. J C 58 (2008) 5

Measurement of the  $\tau$  lepton polarisation at LEP2  
Phys. Lett. B 659 (2008) 65

2009

DELPHI Collaboration: J Abdallah (et al.); H.M. Blom, P. van Dam, P. Kluit, J. Montenegro, M. Mulders, D. Reid, J Timmermans

Higgs boson searches in CP-conserving and CP-violating MSSM scenarios with the DELPHI detector  
Eur. Phys. J C 54 (2008) 1-5 erratum 56 (2008) 165

Study of W-boson polarisations and triple gauge boson couplings in the reaction  $e^+e^- \rightarrow W^+W^-$  at LEP2  
Eur. Phys. J C 54 (2008) 445

Measurement of the mass and width of the W boson in  $e^+e^-$  collisions at  $\sqrt{s}=161\text{-}209$  GeV  
Eur. Phys. J C 55 (2008) 001

Study of b-quark mass effects in multijet topologies with the DELPHI detector at LEP  
Eur. Phys. J C 55 (2008) 525

Observation of the muon inner bremsstrahlung at LEP1  
Eur. Phys. J C 57 (2008) 499

Di-jet production in  $\gamma\gamma$  collisions at LEP2  
Eur. Phys. J C 58 (2008) 501

Measurement of the  $\tau$  lepton polarisation at LEP2  
Phys. Lett. B 659 (2008) 65

2010

DELPHI Collaboration: J Abdallah (et al.); H.M. Blom, P. van Dam, P. Kluit, J. Montenegro, M. Mulders, D. Reid, J Timmermans  
Measurements of CP-conserving trilinear gauge boson couplings  $WWV$  ( $V=\gamma,Z$ ) in  $e^+e^-$  collisions at LEP2  
Eur. Phys. J C 66 (2010) 5

Study of the dependence of direct soft photon production on the jet characteristics in hadronic  $Z^0$  decays  
Eur. Phys. J C 67 (2010) 44

## Precision electroweak physics at LEP: L3 (completed)

2005

L3 Collaboration: P. Achard (et al.), Filthaut, F.; Hu, Y.; Kittel, W.; König, A.C.; Metzger, W.J; Mil, A. van; Novak, T.; Petersen, B.; Roux, B.; Schotanus, D.J; Timmermans, C.; Walle, R.T. van de; Wang, Q.; Wijnen, T.A.M.; Wilkens, H.  
Measurement of the running of the electromagnetic coupling at large momentum-transfer at LEP  
Phys. Lett. B623 (2005) 26

Measurement of the photon structure function  $F_2(\gamma)$  with the L3 detector at LEP  
Phys. Lett. B622 (2005) 249

Measurement of the cross section for open-beauty production in photon-photon collisions at LEP  
Phys. Lett. B619 (2005) 71-81

Neutral-current four-fermion production in  $e^+e^-$  interactions at LEP  
Phys. Lett. B616 (2005) 159

Measurement of exclusive  $p^*p^-$  production in mid-virtuality two-photon interactions and study of the  $\gamma\gamma \rightarrow p\bar{p}$  process at LEP  
Phys. Lett. B615 (2005) 19

Z-boson production with two unobserved, back-to-back, hard photons at LEP  
Phys. Lett. B613 (2005) 118

Compton scattering of quasi-real virtual photons at LEP  
Phys. Lett. B616 (2005) 145

Measurement of the shadowing of high-energy cosmic rays by the moon: A search for TeV-energy antiprotons  
Astropart. Phys. 23 (2005) 411

Study of spin and decay-plane correlations of W bosons in the  $e^+e^- \rightarrow W^+W^-$  process at LEP  
Eur. Phys. J C40 (2005) 44-41

Search for an invisibly-decaying Higgs boson at LEP  
Phys. Lett. B609 (2005) 5

2006

L3 Collaboration: Achard, P. (et al.), Akker, M. van den; Baldew, S.V.; Bobbink, G.J; Dalen, J.A. van; Dierckxsens, M.; Dierendonck, D. van; Filthaut, F.; Groenstege, H.; Kittel, W.; Koenig, A.C.; Kok, E.; Kuijpers, J; Linde, F.L.; Metzger, W.J; Mil, A. van; Muijs, A.JM.; Novak, T.; Petersen, B.; Rewiersma, P.; Rojkov, A.; Schotanus, D.J; Timmermans, C.; Verkooijen, H.; Walle, R.T. van de; Wang, Q.; Wijk, R. van; Wijnen, T.A.M.; Zwart, A.N.M.  
Analysis of the  $\pi^+\pi^-\pi^+\pi^-$  and  $\pi^+\pi^-\pi^+\pi^0$  final states in quasi-real two-photon collisions at LEP  
Phys. Lett. B638 (2006) 128

Measurement of the mass and the width of the W boson at LEP  
Eur. Phys. J C45 (2006) 569

Measurement of hadron and lepton-pair production in  $e^+e^-$  collisions at  $\sqrt{s} = 192$  GeV to 208 GeV at LEP  
Eur. Phys. J C47 (2006) 1

A search for varying very-high-energy cosmic  $\gamma$ -ray sources with the L3+C muon spectrometer  
Astropart. Phys. 25 (2006) 298

The solar flare of the 14th of July 2000 (L3+C detector results)  
Astronomy & Astrophysics 456 (2006) 51

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