

Welcome

Workshop on single-top production and fourth-generation quarks

Thomas Schörner-Sadenius
(for the Analysis Centre)

Hamburg, 14 September 2009

WELCOME ...

... to the workshop on “Single-top production and fourth-generation quarks”!

> Aims:

- Get to know the people working in the field
- Create new collaborations between different people and institutes, maybe even between the collaborations
- For the experimentalists: Get new input from the theory colleagues
- For the theorists: Find out, what the experimentalists need and want
- ...

> Activity in the spirit of the Helmholtz Alliance “Physics at the Terascale” and of its Analysis Centre

- Connecting people
- Getting new impulses for the community
- Focusing on analysis-related activities of general relevance.



ANALYSIS CENTRE: SCHOOLS AND WORKSHOPS

School on Fitting and Related Topics

PHYSICS AT THE TERASCALE
Helmholtz Alliance

30 March – 2 April 2009
DESY, Hamburg Site

Determining parameters from fits to data will be a crucial task in analyses of the upcoming LHC data. This school aims at providing education on this topic from a basic to the more advanced level.

Covered Topics:

- constant, straight line, parabolic & others fits
- clever choices of parameters
- normal equations
- parameter errors and correlations
- fit quality and outlier rejection
- non-linear fits: signal peak(s) on background
- Poisson vs Gaussian statistics
- binned vs unbinned fits
- constraint fits
- (special) software tools
- nice physics examples

Organizing Committee: G. Borchardt (DESY), F. Elsteglass (Hamburg), M. Gieseler (DESY), C. Heide (DESY), R. Kneuper (Hamburg), S. Lutz (Hamburg), S. Moch (Hamburg), J. Rindler-Schjerve (DESY), A. Schachtke (DESY), S. Schuler (DESY), J. Schumacher (Hamburg), G. Schuler (Hamburg)

Registration deadline: 10 March 2009. Please register via the school webpage.

<http://www.terascale.de/fitting>

Monte Carlo School

PHYSICS AT THE TERASCALE
Helmholtz Alliance

20-24 April 2009,
DESY Hamburg

Topics:

- Monte Carlo techniques and standard physics (S. Schuler)
- Automated matrix element calculations (T. Gehrmann)
- Monte Carlo event generators
 - Herwig++ (P. Schuler)
 - Pythia6 (R. Klemp)
 - MadEvent (T. Plehn)
 - Whizard (H. Eberhard)
 - Holo-Phragm (R. W. Wood)
 - Sherpa (T. Borel)
- Exercises

The school covers Monte Carlo techniques and automated calculation of matrix elements. The focus of the school is on Monte Carlo event generators for simulation of processes beyond the standard model. The simulation of QCD and electroweak "background" will also be covered. In practical exercises, BSM signal processes as well as standard model background will be simulated.

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Registration deadline: 10 March 2009. Please register via the school webpage.

<http://www.terascale.de/mcs2009>

Workshop on Detector Understanding with First LHC Data

PHYSICS AT THE TERASCALE
Helmholtz Alliance

29 June – 3 July 2009,
DESY, Hamburg Site

Topics:

- Monte ID and reconstruction
- Jet and missing transverse energy
- Tau ID and reconstruction
- Electrons and photons
- Tracking, vertexing and b-tagging
- Trigger
- Alignment and calibration
- Hands-on exercises for object reconstruction

The workshop is aimed at PhD students and young postdocs who want to learn about different particle detectors, their reconstruction, access and usage for the beginning specific software development, and about typical problems for calibration, reconstruction, alignment etc. The workshop consists of lectures, computer exercises, and practical tasks on selected topics.

Invited lecture:

- The first 100 days of Tevatron
- Minimum Bias Physics and the Understanding of the LHC
- Physics with first data at the LHC

Registration deadline: 31.05.2009. Please register via the school webpage.

Organizing Committee: W. Elsteglass (DESY), J. Keller (Hamburg), R. Kneuper (Hamburg), G. Krieger (DESY), S. Moch (DESY), A. Moch (DESY), R. Moch (DESY), J. Schuler (DESY), M. Schumacher (Hamburg), G. Schuler (Hamburg)

<http://www.terascale.de>

Workshop on Advanced Methods in Statistical Data Analysis

PHYSICS AT THE TERASCALE
Helmholtz Alliance

12-14 October 2009,
Karlsruhe University

Many searches for expected or unexpected new particles will be performed at the LHC. This workshop aims to provide help and education on some fields of statistics tools which are essential for such searches.

- separating signals and backgrounds
- using multivariate analysis techniques
- optimal searches, setting limits, making discoveries
- evaluating systematic uncertainties

It aims at PhD students and young Postdocs who have already gained some experience in statistical data analysis and are familiar with ROOT.

Organizing Committee: W. Elsteglass (DESY), J. Keller (Hamburg), R. Kneuper (Hamburg), G. Krieger (DESY), S. Moch (DESY), A. Moch (DESY), R. Moch (DESY), J. Schuler (DESY), M. Schumacher (Hamburg), G. Schuler (Hamburg)

Registration deadline: 10 October 2009. Please register via the school webpage.

<http://www.terascale.de/stat2009>

Monte Carlo School

PHYSICS AT THE TERASCALE
Strategic Helmholtz Alliance

21-24 April 2008,
DESY Hamburg

Topics:

- Monte Carlo techniques and physics (S. Schuler)
- NLO Calculations (M. Gieseler)
- NLO and parton showers (R. Klemp)
- Monte Carlo event generators
 - HERWIG (P. Schuler)
 - Pythia6 (R. Klemp)
 - MadEvent (T. Plehn)
 - Whizard (H. Eberhard)
 - Sherpa (T. Borel)
- Exercises (J. Schumacher et al.)

The school covers Monte Carlo techniques and applications in NLO calculations as well as full hadron level Monte Carlo event generators. Predictions coming from different generators will be compared in practical exercises and final steps for comparison with measurements will be shown in tutorials.

Registration deadline: 10.03.2008. Please register via the school webpage.

<http://www.terascale.de/mcs2008>

School on Statistics Tools

PHYSICS AT THE TERASCALE
Strategic Helmholtz Alliance

29 September – 2 October 2008
DESY, Hamburg Site

Learn about statistical methods essential for the analysis of the LHC data. The program consists of plenary lectures, special highlights talks and practical work on example problems in smaller groups.

Covered Topics:

- Optimal signal-background separation, multivariate techniques
- Searching for signals, discoveries, limits
- Advanced likelihood fit techniques
- Special practical problems, e.g.
 - data corrections (unfolding)
 - systematic errors

Invited Lecturers:

- Volker Blobel
- Glen Cowan
- Luc Demortier
- Markus Schumacher
- Helge Witt
- Rainer Winkler

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Registration deadline: 10 September 2008. Please register via the school webpage.

<http://www.terascale.de/stat2008>

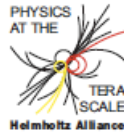


SINGLE-TOP WORKSHOP

Helmholtz Alliance

PHYSICS AT THE TERASCALE

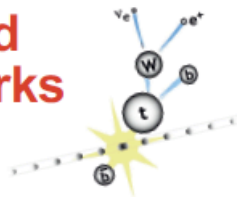
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• Humboldt-Universität Berlin • Eidgenössische Technische Hochschule Zürich • Universität Bonn • Universität Dortmund • Technische Universität Dresden • Albert-Ludwigs-Universität
Freiburg • Justus-Liebig-Universität Gießen • Georg-August-Universität Göttingen • Universität Hamburg • Universität Heidelberg • Universität Karlsruhe • Johannes
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Würzburg • Georgische Universität Wuppertal



Workshop on

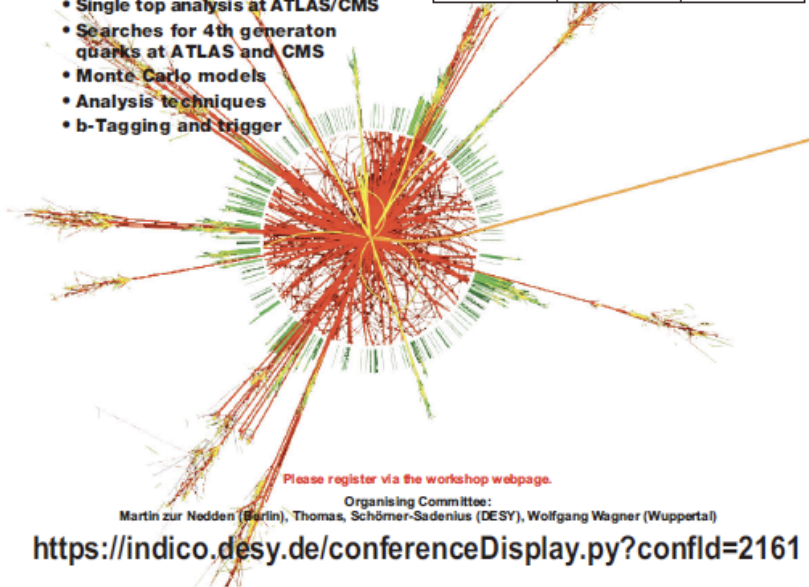
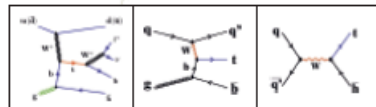
Single-top physics and fourth-generation quarks

14 - 15 September 2009
DESY, Hamburg Site



Topics:

- Theoretical and experimental overview of single top and 4th generation quarks
- Single top analysis at ATLAS/CMS
- Searches for 4th generation quarks at ATLAS and CMS
- Monte Carlo models
- Analysis techniques
- b-Tagging and trigger



Please register via the workshop webpage.

Organising Committee:

Martin zur Nedden (Berlin), Thomas, Schörner-Sadenius (DESY), Wolfgang Wagner (Wuppertal)

<https://indico.desy.de/conferenceDisplay.py?confId=2161>

13:00	Single Top-Quark Production at the LHC - Wolfgang Wagner (Bergische Universität Wuppertal) (until 15:45)
13:00	Welcome - Thomas Schoerner-Sadenius (DESY)
13:15	Progress in single top predictions and simulations - Fabio Maltoni (University of Louvain)
14:25	Prosepects of the measurement of single top quark production with ATLAS - Dominic Hirschebuehl (Bergische Universität Wuppertal)
15:05	Single Top Strategies and Potentials at CMS - Jeannine Wagner-Kuhr (Karlsruher Institut für Technologie (KIT))
15:45	--- Coffee Break ---
16:15	Parton Distribution Functions and Experimental Techniques - Peter Uwer (Humboldt-Universität zu Berlin) (until 19:05)
16:15	The b-Quark Distributions in the Nucleon - Sergey Alekhin
17:15	Angular correlations in t-channel single top production at the LHC - Patrick Motylinski (Universität Freiburg)
17:45	Single-top t-channel cross section studies at 200 pb ⁻¹ for ATLAS - Gia Khorrami (Universität Bonn)
18:10	Estimating the W+jets background in single-top selections by a fraction fitting method - Muhammad Alhroob (Uni-Bonn)



ORGANISATIONAL ISSUES ++

- > Thanks to all contributors, to Wolfgang and Martin for the organisation, and to the Alliance for financial support.
- > We have not planned for any social activity tonight. There is a number of restaurants around – I think sufficient participants know them and should be able to organise you if this is wanted.
- > ... in case of questions or problems, don't hesitate to contact me (anacen@desy.de), or ask Wolfgang or Martin.
- > Have fun and enjoy the workshop.

