DAVID HANDL

EXPERIMENTAL PARTICLE PHYSICIST

Born in Austria, 26th May, 1989

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CORE COMPETENCIES

Excellent analytical skills of large-scale experimental data; advanced statistical techniques; vital laboratory skills; good knowledge of computer languages such as C, C++ and Python; ability to work collaboratively as a member of an international team; solid education in fundamental physics with the focus on particle physics

RESEARCH

May '16-Present Ph.D. Student, Faculty of Physics, Ludwig-Maximilians-Universität München – Munich

As an ambitous member of the ATLAS Collaboration I am actively contributing to a search for scalar top quarks in final states with exactly one electron or muon. I am studying the capability of novel machine learning algorithms to enhance the search sensitivity. Apart from that, I investigated potential improvements of the missing transverse energy high level object trigger system and currently I am contributing to efficiency measurements of muons with very low transverse momentum. In addition, I spent six months of my research abroad at the European Nuclear Research Facility (CERN) in Geneva, Switzerland, to get a detailed insight of internal operations and the work life at an international research environment. Since I am strongly dedicated in outreach affairs, I also took the chance to become an official visitor guide for several experiments and facilities, including the ATLAS underground cavern and I am volunteering as a tutor at physics masterclasses.

Oct '14-Dec '15 Master Student, Institute of High Energy Physics – Vienna

As a master student I worked as an active member in a joint collaboration consisting of data analysis groups at the University of Athens, CERN, DESY Hamburg and the Institute of High Energy Physics in Vienna. We performed searches for supersymmetry with a single lepton final state in 13 TeV data recorded by the CMS collaboration. I made significant contributions to the estimation of the $t\bar{t}$ + jets, W + jets and QCD multijet backgrounds.

Sept-Oct 2014 Intern, Institute of High Energy Physics – Vienna

I performed electrical tests of the readout electronics for the Belle II Silicon Vertex Detector with the dedicated data acquisition software at the Institutes module cleanroom. Several important coefficients which reflect the quality and reliability of the readout chips were measured and a statistical evaluation was performed. Based on these tests I could localise faulty readout chips and they were sorted out.

Oct-Dec 2013 Intern, Institute of High Energy Physics – Vienna

An optimization of a multivariate data analysis was perfomed to improve a search for supersymmetry. I studied different parameters of the machine learning algorithm to understand how the algorithm estimates a statistical model based on a given dataset.

PUBLICATIONS

Search for top squark pair production in final states with one isolated lepton, jets, and missing transverse momentum using 36 fb^{-1} of $\sqrt{s} = 13$ TeV pp collision data with the ATLAS detector, `arXiv:1711.11520` (under review)

Search for top squarks in final states with one electron or muon in $\sqrt{s} = 13$ TeV pp collisions with the ATLAS detector, in Proceedings of Science 2017

TALKS AND POSTERS

Applications of Machine Learning techniques at the ATLAS collaboration, string_data18 Workshop, March 2018

Search for top squarks in final states with one electron or muon in $\sqrt{s} = 13$ TeV pp collisions with the ATLAS detector, EPS-HEP, July 2017

EDUCATION

2016-Present LUDWIG-MAXIMILIANS-UNIVERSITÄT MÜNCHEN

Ph.D. candidate in Physics

2013-2016 VIENNA UNIVERSITY OF TECHNOLOGY

M.Sc. in Technical Physics

2009-2013 VIENNA UNIVERSITY OF TECHNOLOGY

B.Sc. in Technical Physics

COMPUTING SKILLS

C, C++, Python, ROOT, Linux, Latex

OTHER INFORMATION

Languages

GERMAN · Mothertongue

ENGLISH · Advanced

FRENCH · Basic (simple words and phrases only)

Interests

running · skiing · football · reading · cooking · programming · photography

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