

Basil Schneider

contact

Rheinstrasse 63
4410 Liestal
Switzerland

+41 (0) 78 710 37 55

basil.schneider@cern.ch

about

Swiss citizenship
Born 19th March 1982

languages

German (native)
English (fluent)
French (moderate)

computing

Linux
C++, Python
Root, RooFit, RooStats
Bash, Sed, Awk
L^AT_EX
VHDL

besides physics

Cycling
Hiking
Music

education & employment

- Jan '11 - now **Ph.D. at the ATLAS experiment** University of Bern
Ph.D. Thesis: A general approach to search for supersymmetry at the LHC by combining signal enhanced kinematic regions using the ATLAS detector (Supervisor: Prof. A. Ereditato)
- Sep '08 - Mar '10 **Master of Science in Theoretical Physics** ETH Zurich
Master Thesis: The partition function of meromorphic conformal field theories at higher genus (Supervisor: Prof. M. Gaberdiel)
- Oct '04 - Sep '08 **Bachelor of Science in Experimental Physics** ETH Zurich
Bachelor Thesis: Untersuchung der Cluster-Struktur von Elastomerpartikeln durch Simulation des Aggregationsvorganges und Partikelgrößen mittels dynamic light scattering (Supervisor: Dr. Cornelius Gauer)
- Sep '04 **Comprehensive entrance exam** ETH Zurich
Exam at the level of a Matura

conferences

- May '13 **1st LHC Physics Conference, Barcelona, Spain** ATL-PHYS-SLIDE-2013-350
Poster: "Search for direct production of charginos and neutralinos in events with three leptons and missing transverse momentum in 21 fb⁻¹ of pp collisions at $\sqrt{s} = 8$ TeV with the ATLAS detector"
- Jun '12 **Swiss Physical Society**
Speaker: "New Optical receiver modules for the insertable B-Layer at the ATLAS project"
- Jun '11 **Physics at LHC, Perugia, Italy** ATL-PHYS-SLIDE-2011-423
Poster: "SUSY Searches at ATLAS in Multilepton Final States with Jets and Missing Transverse Energy"
- Jun '11 **Swiss Physical Society**
Speaker: "Insertable b-Layer: A new layer for the ATLAS detector at CERN"

teaching

- Jan '11 - now **Lab Course** University of Bern
Supervising and assisting Physics undergraduate students working on fundamental experiments in mechanics and electronics
- Jan '11 - now **Physics for Biologists** University of Bern
Assisting 1st year Physics course
- Jul '11 - now **Private lessons for high-school graduates** Interlink Schulberatung GmbH
Private lessons in Mathematics, Statistics and Physics
- 2007/2008 **Teaching assistant** ETH Zurich
Teaching assistant for environmental science students in Calculus

publications

I am co-author of 213 ATLAS publications; for a full list, see <http://inspirehep.net/author/profile/B.Schneider.1>

Publications where my contributions are substantial:

Jun '14	A general approach to search for supersymmetry at the LHC by combining signal enhanced kinematic regions using the ATLAS detector (PhD thesis) CERN-THESIS-2014-056
May '14	Search for supersymmetry in events with four or more leptons in $\sqrt{s} = 8$ TeV pp collisions with the ATLAS detector arXiv:1405.5086 [hep-ex]
Feb '14	Search for direct production of charginos and neutralinos in events with three leptons and missing transverse momentum in $\sqrt{s} = 8$ TeV pp collisions with the ATLAS detector JHEP04(2014)169
Jun '13	Search for direct production of charginos and neutralinos in events with three leptons and missing transverse momentum in 21 fb ⁻¹ of pp collisions at $\sqrt{s} = 8$ TeV with the ATLAS detector ATL-PHYS-PROC-2013-145
Mar '13	Search for supersymmetry in events with four or more leptons in 21 fb ⁻¹ of pp collisions at $\sqrt{s} = 8$ TeV with the ATLAS detector ATLAS-CONF-2013-036
Mar '13	Search for direct production of charginos and neutralinos in events with three leptons and missing transverse momentum in 21 fb ⁻¹ of pp collisions at $\sqrt{s} = 8$ TeV with the ATLAS detector ATLAS-CONF-2013-035
Nov '12	Search for direct production of charginos and neutralinos in events with three leptons and missing transverse momentum in 13.0 fb ⁻¹ of pp collisions at $\sqrt{s} = 8$ TeV with the ATLAS detector ATLAS-CONF-2012-154
Nov '12	Search for Supersymmetry in events with four or more leptons in 13 fb ⁻¹ pp collisions at $\sqrt{s} = 8$ TeV with the ATLAS detector ATLAS-CONF-2012-153
Aug '12	Search for direct production of charginos and neutralinos in events with three leptons and missing transverse momentum in $\sqrt{s} = 7$ TeV pp collisions with the ATLAS detector Phys.Lett. B718 (2013) 841-859
Nov '11	The ATLAS IBL BOC Demonstrator ATL-INDET-PROC-2011-038
Oct '11	SUSY Searches at ATLAS in Multilepton Final States with Jets and Missing Transverse Energy ATL-PHYS-PROC-2011-201

internal notes

Dec '13	Search for supersymmetry in events with four or more leptons in $\sqrt{s} = 8$ TeV pp collisions with the ATLAS detector ATL-COM-PHYS-2013-1621
Oct '13	Search for supersymmetry in events with three leptons and missing transverse momentum in 21 fb ⁻¹ pp collisions at $\sqrt{s} = 8$ TeV with the ATLAS detector ATL-PHYS-INT-2013-021
Jul '13	Search for supersymmetry in events with three leptons and missing transverse momentum in 20.3 fb ⁻¹ pp collisions at $\sqrt{s} = 8$ TeV with the ATLAS detector ATL-COM-PHYS-2013-888
Dec '12	Search for Supersymmetry in events with four or more leptons in 20.7 fb ⁻¹ pp collisions at $\sqrt{s} = 8$ TeV with the ATLAS detector ATL-COM-PHYS-2012-1819
Dec '12	Search for Supersymmetry in events with four or more leptons in 13 fb ⁻¹ pp collisions at $\sqrt{s} = 8$ TeV with the ATLAS detector ATL-PHYS-INT-2012-096
Dec '12	Search for supersymmetry in events with three leptons and missing transverse momentum in 13 fb ⁻¹ pp collisions at $\sqrt{s} = 8$ TeV with the ATLAS detector ATL-PHYS-INT-2012-095
Sep '12	SUSY Searches in the Final States with Three Leptons and Missing Transverse Momentum at ATLAS ATL-PHYS-INT-2012-059

experience

Jan '11 - now

Analysis: Supersymmetry

- Binning and optimizing the three light lepton final state signal region
- Signal region optimizations in three lepton final states with taus
- Assembling and scripting a package of various scripts to facilitate limit computations; also used by other analyses
- Statistical interpretations of results: Discovery p-values, exclusion contours, upper limits on model cross-sections
- Simultaneous fit of the WZ background in control and signal regions
- Optimization of distributed computing resources for limit calculations with pseudo-experiments
- Presented the analyses at 2 SUSY-Approvals on behalf of the multi-lepton group
- Assisting younger students

Jan '11 - Dec '12 **Hardware: IBL**

- Building up the IBL activities at the University of Bern
- Test of the optical readouts
- Feasibility study of the usage of commercial products
- Selecting best optical readout candidate based on experimental data
- Rudimentary tests with FPGA programming in VHDL
- Replacing dead optical transmitters in USA15
- Presented studies at 2 IBL general meetings on behalf of the ATLAS Bern group

references

Jan '11 - Jul '14

Prof. Antonio Ereditato

PhD supervisor

Laboratory for High Energy Physics, University of Bern
+41 31 631 8566, antonio.ereditato@cern.ch

Jan '11 - Jul '14

Prof. Michele Weber

PhD supervisor

Laboratory for High Energy Physics, University of Bern
+41 31 631 5146, weber@lhep.unibe.ch

Jul '14 - Jul '14

Dr. Jamie Boyd

SUSY convenor, external referee PhD thesis

CERN
+41 76 473 08 77, jamie.boyd@cern.ch

Jan '11 - Jul '14

Dr. Anadi Canepa

SUSY Electroweak convenor

TRIUMF, Canada's National Laboratory for Particle and Nuclear Physics
+1 604-222-7330, canepa@triumf.ca

Jan '11 - Jul '14

Dr. Zoltan Gecse

SUSY Electroweak convenor

Department of Physics & Astronomy, University of British Columbia
+1 604-822-7974, zgecse@phas.ubc.ca

Jan '11 - Jul '14

Dr. Christina Potter

SUSY Electroweak convenor

Department of Physics and Astronomy, University of Sussex
+44 1273 873523, christina.potter@sussex.ac.uk

Jan '11 - Dec '12

Dr. Tobias Flick

IBL Off-Detector Coordinator

Detector Laboratory, Bergische Universität Wuppertal
+49 202 439-2811, flick@physik.uni-wuppertal.de