

# Basil Schneider

## contact

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## about

Swiss citizenship  
Born 19<sup>th</sup> March 1982

## languages

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

## computing

Linux  
C++, Python  
Root, RooFit, RooStats  
Bash, Sed, Awk  
L<sup>A</sup>T<sub>E</sub>X  
VHDL

## besides physics

Cycling  
Hiking  
Music

## education & employment

- Nov '14 - now **Postdoctoral Fellow** at the **ATLAS experiment** TRIUMF
- Jan '11 - Jul '14 **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

- Jun '15 **USATLAS Workshop at University of Illinois at Urbana-Champaign**  
Speaker: "Supersymmetry in run 2"
- May '15 **Mitchell Workshop on Collider and Dark Matter Physics**  
Speaker: "Supersymmetry searches in ATLAS"
- May '13 **1<sup>st</sup> 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<sup>-1</sup> 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	<b>Lab Course</b> Supervising and assisting Physics undergraduate students working on fundamental experiments in mechanics and electronics	University of Bern
Jan '11 - now	<b>Physics for Biologists</b> Assisting 1 <sup>st</sup> year Physics course	University of Bern
Jul '11 - now	<b>Private lessons for high-school graduates</b> Private lessons in Mathematics, Statistics and Physics	Interlink Schulberatung GmbH
2007/2008	<b>Teaching assistant</b> Teaching assistant for environmental science students in Calculus	ETH Zurich

## publications

I am co-author of 302 ATLAS publications; for a full list, see <http://inspirehep.net/author/profile/B.Schneider.1>

Publications where my contributions are substantial:

Jul '15	First look at proton proton collision data at $\sqrt{s} = 13$ TeV in preparation for a search for squarks and gluinos in events with missing transverse energy, jets, and an isolated electron or muon	ATL-PHYS-PUB-2015-029
Mar '15	Expected sensitivity studies for gluino and squark searches using the early LHC 13 TeV Run-2 dataset with the ATLAS experiment	ATL-PHYS-PUB-2015-005
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 <sup>-1</sup> 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 <sup>-1</sup> 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 <sup>-1</sup> 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 <sup>-1</sup> 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 <sup>-1</sup> 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

Jul '15	First look at proton proton collision data at $\sqrt{s} = 13$ TeV in preparation for a search for squarks and gluinos in events with missing transverse energy, jets, and an isolated electron or muon ATL-COM-PHYS-2015-718
Feb '15	Expected sensitivity of search for squarks and gluinos in events with isolated leptons, jets and missing transverse momentum at $\sqrt{s} = 13$ TeV with the ATLAS detector ATL-COM-PHYS-2015-133
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 $21 \text{ fb}^{-1}$ 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 $20.3 \text{ fb}^{-1}$ 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 $20.7 \text{ fb}^{-1}$ 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 $13 \text{ fb}^{-1}$ 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 $13 \text{ fb}^{-1}$ 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	<b>Analysis: Supersymmetry</b> <ul style="list-style-type: none"> <li>• Binning and optimizing the three light lepton final state signal region</li> <li>• Signal region optimizations in three lepton final states with taus</li> <li>• Assembling and scripting a package of various scripts to facilitate limit computations; also used by other analyses</li> <li>• Statistical interpretations of results: Discovery p-values, exclusion contours, upper limits on model cross-sections</li> <li>• Simultaneous fit of the WZ background in control and signal regions</li> <li>• Optimization of distributed computing resources for limit calculations with pseudo-experiments</li> <li>• Presented the analyses at 2 SUSY-Approvals on behalf of the multi-lepton group</li> <li>• Assisting younger students</li> </ul>
Jan '11 - Dec '12	<b>Hardware: IBL</b> <ul style="list-style-type: none"> <li>• Building up the IBL activities at the University of Bern</li> <li>• Test of the optical readouts</li> <li>• Fesibility study of the usage of commercial products</li> <li>• Selecting best optical readout candidate based on experimental data</li> <li>• Rudimentary tests with FPGA programming in VHDL</li> <li>• Replacing dead optical transmitters in USA15</li> <li>• Presented studies at 2 IBL general meetings on behalf of the ATLAS Bern group</li> </ul>

## references

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## outreach

Nov '13 - now

**Official ATLAS underground guide**

Mar '12 - Mar '13

**Masterclasses**

Helping high school students performing measurements on real data from LHC

## awards

Mar '15

**Faculty award winner of the University of Bern**

Award for the best PhD thesis in physics at the University of Bern in the year 2014