

# Basil Schneider

## contact

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## languages

German (native)  
English (fluent)  
French (moderate)  
Croatian (beginner)  
Norwegian (beginner)

## computing

Linux  
C++, Python, Rust  
Root, RooFit, RooStats  
bash, sed, awk  
git, svn  
HTML, CSS  
L<sup>A</sup>T<sub>E</sub>X

## besides physics

Cycling  
Hiking  
Music

## education & employment

Nov '15 - now	<b>Research Associate</b> at the <b>CMS experiment</b>	Fermilab
Nov '14 - Oct '15	<b>Postdoctoral Fellow</b> at the <b>ATLAS experiment</b>	TRIUMF
Jan '11 - Jul '14	<b>Ph.D.</b> at the <b>ATLAS experiment</b> 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)	University of Bern
Sep '08 - Mar '10	<b>Master</b> of Science in <b>Theoretical Physics</b> Master Thesis: The partition function of meromorphic conformal field theories at higher genus (Supervisor: Prof. M. Gaberdiel)	ETH Zurich
Oct '04 - Sep '08	<b>Bachelor</b> of Science in <b>Experimental Physics</b> Bachelor Thesis: Untersuchung der Cluster-Struktur von Elastomerpartikeln durch Simulation des Aggregationsvorganges und Partikelgrößen mittels dynamic light scattering (Supervisor: Dr. Cornelius Gauer)	ETH Zurich
Sep '04	<b>Comprehensive entrance exam</b> Exam at the level of a Matura	ETH Zurich

## awards

Mar '15	<b>Faculty award winner of the University of Bern</b> Award for the best PhD thesis in physics at the University of Bern in the year 2014
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## leadership

Jan '18 - now	<b>SUSY Leptonic subgroup co-convener</b>
Oct '16 - May '17	<b>Coordinator of the Single Lepton dPhi Analysis group</b>

## conferences

Oct '17	<b>IEEE Nuclear Science Symposium and Medical Imaging Conference</b> Poster: "A new DAQ solution: <i>otsdaq</i> " Atlanta, GA, USA
Aug '17	<b>Meeting of the Division of Particles and Fields of the American Physical Society</b> Fermilab, Batavia, IL, USA Speaker: "Searches for electroweakly produced supersymmetry with CMS"
May '17	<b>Phenomenology 2017 Symposium</b> Pittsburgh, PA, USA Speaker: "Searches for supersymmetry in single or opposite-charged dilepton final states with CMS"
Jun '16	<b>49th Annual Fermilab Users Meeting</b> Fermilab, Batavia, IL, USA Poster: "Characterization of the pixel ASIC with a laser beam in the Outer Tracker upgrade of the CMS detector"
May '15	<b>Mitchell Workshop on Collider and Dark Matter Physics</b> Texas A&M University, College Station, TX, USA Speaker: "Supersymmetry searches in ATLAS"
May '13	<b>1<sup>st</sup> LHC Physics Conference (LHCP)</b> Barcelona, Spain Poster: "Search for direct production of charginos and neutralinos in events with three leptons and missing transverse momentum in $21 \text{ fb}^{-1}$ of pp collisions at $\sqrt{s} = 8 \text{ TeV}$ with the ATLAS detector"
Jun '12	<b>Swiss Physical Society</b> ETH, Zurich, Switzerland Speaker: "New Optical receiver modules for the insertable B-Layer at the ATLAS project"
Jun '11	<b>Physics at LHC</b> Perugia, Italy Poster: "SUSY Searches at ATLAS in Multilepton Final States with Jets and Missing Transverse Energy"
Jun '11	<b>Swiss Physical Society</b> EPF, Lausanne, Switzerland Speaker: "Insertable b-Layer: A new layer for the ATLAS detector at CERN"

## journal publications

I am co-author of 475 ATLAS publications and 111 CMS publications;  
for a full list, see

<http://inspirehep.net/author/profile/B.Schneider.1>

Publications with substantial contributions from me:

2018	Performance of the Prototype CBC3-based Outer Tracker Module for the Phase-2 Upgrade of CMS in preparation
2018	Performance of Prototype Silicon Detectors for the Outer Tracker for the Phase-2 Upgrade of CMS in preparation
Jan '18	Search for new physics in events with two soft oppositely charged leptons and missing transverse momentum in proton-proton collisions at $\sqrt{s} = 13 \text{ TeV}$ arXiv:1801.01846 [hep-ex]
Sep '17	Search for supersymmetry in events with one lepton and multiple jets exploiting the angular correlation between the lepton and the missing transverse momentum in proton-proton collisions at $\sqrt{s} = 13 \text{ TeV}$ 10.1016/j.physletb.2018.03.028
Sep '16	Search for supersymmetry in events with one lepton and multiple jets in proton-proton collisions at $\sqrt{s} = 13 \text{ TeV}$ Phys. Rev. D 95, 012011 (2017)

Sep '15	Search for the electroweak production of supersymmetric particles in $\sqrt{s} = 8$ TeV pp collisions with the ATLAS detector Phys. Rev. D 93, 052002 (2016)
May '14	Search for supersymmetry in events with four or more leptons in $\sqrt{s} = 8$ TeV pp collisions with the ATLAS detector Phys. Rev. D. 90, 052001 (2014)
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
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

## proceedings

Jun '13	Search for direct production of charginos and neutralinos in events with three leptons and missing transverse momentum in $21 \text{ fb}^{-1}$ of pp collisions at $\sqrt{s} = 8$ TeV with the ATLAS detector EPJ Web of Conferences 60, 20040 (2013)
Nov '11	The ATLAS IBL BOC Demonstrator Proceedings, 2011 IEEE Nuclear Science Symposium and Medical Imaging Conference
Oct '11	SUSY Searches at ATLAS in Multilepton Final States with Jets and Missing Transverse Energy Proceedings, Physics at LHC 2011

## public notes

2018	Search for Supersymmetry at the HL-LHC with the Upgraded CMS Detector in preparation
Apr '18	The Phase-2 Upgrade of the CMS Endcap Calorimeter – Technical Design Report CERN-LHCC-2017-023
Sep '17	The Phase-2 Upgrade of the CMS Barrel Calorimeters – Technical Design Report CERN-LHCC-2017-011
Jun '17	The Phase-2 Upgrade of the CMS Tracker – Technical Design Report CERN-LHCC-2017-009
Dec '16	Search for new physics in the compressed mass spectra scenario using events with two soft opposite-sign leptons and missing transverse momentum at $\sqrt{s} = 13$ TeV CMS PAS SUS-16-025
Aug '16	Search for supersymmetry in events with one lepton and multiple jets in proton-proton collisions at $\sqrt{s} = 13$ TeV in 2016 CMS PAS SUS-16-019
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
Mar '13	Search for supersymmetry in events with four or more leptons in $21 \text{ fb}^{-1}$ 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 <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

## organization

Aug '12	<b>Co-organizer of workshop: ATLAS SUSY Statistical Interpretations workshop</b> Wrap up lessons learned in previous round of publications and spot possible improvements for next round	
Sep '11	<b>Co-organizer of outreach event: Nacht der Forschung</b> Performing experiments in public and discussing results	University of Bern

## outreach

Jan '16	<b>Fermilab Open House</b> Explaining the purpose and the mission of Fermilab to the public	
Nov '13 - now	<b>Official ATLAS underground guide</b> Showing the ATLAS detector to the public during LHC shutdowns	
Mar '12 - Mar '13	<b>Masterclasses</b> Helping high school students performing measurements on real LHC data	University of Bern
Sep '11	<b>Nacht der Forschung</b> Presenting LHC physics on a poster and answering questions of the public in a research outreach event at the University of Bern	University of Bern

## committees

Feb '18	Analysis Review Committee: Search for supersymmetry in events with two tau leptons and missing transverse momentum in $\sqrt{s} = 13$ TeV proton-proton collisions with the CMS detector	to be submitted to JHEP
Jul '17	Analysis Review Committee: Search for pair production of tau sleptons in $\sqrt{s} = 13$ TeV pp collisions in the all-hadronic final state	CMS-PAS-SUS-17-003
Jan '17	Analysis Review Committee: Search for physics beyond the standard model in events with two leptons of same sign, missing transverse momentum, and jets in proton-proton collisions at $\sqrt{s} = 13$ TeV	Eur. Phys. J. C 77 (2017) 578
Jul '16	Analysis Review Committee: Search for SUSY in same-sign dilepton events at 13 TeV	CMS-PAS-SUS-16-020

## teaching

Jan '11 - May '14	<b>Lab Course</b>	University of Bern
	Supervising and assisting Physics undergraduate students working on fundamental experiments in mechanics and electronics	
Jan '11 - May '14	<b>Physics for Biologists</b>	University of Bern
	Assisting 1 <sup>st</sup> year Physics course	
Jul '11 - May '14	<b>Private lessons for high-school graduates</b>	Interlink Schulberatung GmbH
	Private lessons in Mathematics, Statistics and Physics	
Jun '08	<b>Exam preparation</b>	ETH Zurich
	Exam preparation for 1 <sup>st</sup> year Physics and Mathematics students	
2007/2008	<b>Teaching assistant</b>	ETH Zurich
	Teaching assistant for environmental science students in Calculus	

## supervision

Jul '16 - Oct '16	<b>David Jin</b>	Summer Student at Fermilab, University of Chicago
May '16 - Aug '16	<b>Christian Leefmans</b>	Summer Student at Fermilab, Cornell University
Dec '14 - Nov '15	<b>Felix Cormier</b>	MSc student at CERN, University of British Columbia
Nov '14 - Nov '15	<b>Matthew Gignac</b>	PhD student at CERN, University of British Columbia
Dec '12 - Mar' 14	<b>Benjamin Gerber</b>	MSc student, University of Bern