

# Philipp Gadow

## Curriculum Vitae

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## Employment and education

- 2020+ **Postdoctoral Research Fellow**, *Deutsches Elektronensynchrotron DESY*, Hamburg, Germany.
- 2016–2020 **PhD Physics**, *Max-Planck-Institut für Physik*, Munich, Germany.  
Advisor: PD Dr. Oliver Kortner  
Thesis: Search for Dark Matter Produced in Association with Hadronically Decaying Bosons at  $\sqrt{s} = 13$  TeV with the ATLAS Detector at the LHC
- 2013–2016 **M.Sc. Particle Physics**, *Technical University of Munich*, Munich, Germany.  
Thesis: Development of a Concept for the Muon Trigger of the ATLAS Detector at the HL-LHC
- Winter 2013 **Erasmus SMS**, *University of Edinburgh*, Edinburgh, United Kingdom.
- 2010–2013 **B.Sc. Physics**, *Technical University of Munich*, Munich, Germany.  
Thesis: dE/dx studies with pion and electron tracks of the ALICE GEM IROC prototype

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## Appointments

- 2021+ **Flavour tagging algorithms sub-group convener**, *ATLAS experiment*.  
Co-coordination (2 conveners) of a group consisting of 40 physicists working on machine learning algorithms for the identification of heavy-flavour jets at the ATLAS experiment

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## Selected publications

Over 260 published journal publications as part of the ATLAS Collaboration.

*Every publication of the ATLAS collaboration relies on the results of thousands of individual researchers and technicians. For this reason, each document made public by the ATLAS collaboration includes all members of the collaboration, in alphabetical order. This section includes only publications with direct personal contribution.*

- Sep 2021 Search for heavy resonances in four-top-quark final states in pp collisions at  $\sqrt{s} = 13$  TeV with the ATLAS detector  
*ATLAS-CONF-2021-048* (non-peer-reviewed ATLAS publication)
- Mar 2021 Search for dark matter produced in association with a dark Higgs boson decaying to  $W^{\pm}W^{\mp}$  or  $ZZ$  in fully hadronic final states using  $pp$  collisions at  $\sqrt{s} = 13$  TeV recorded with the ATLAS detector  
*Phys. Rev. Lett.* 126, 121802, [arXiv:2010.06548](https://arxiv.org/abs/2010.06548)
- Aug 2019 RECAST framework reinterpretation of an ATLAS Dark Matter Search constraining a model of a dark Higgs boson decaying to two  $b$ -quarks  
*ATLAS-PUB-2019-032* (non-peer-reviewed ATLAS publication)

- Jun 2019 Combination of Searches for Invisible Higgs Boson Decays with the ATLAS Experiment [minor contribution]  
*Phys. Rev. Lett.* 122, 231801, arXiv:1904.05105
- Mar 2019 Constraints on mediator-based dark matter and scalar dark energy models using  $\sqrt{s} = 13$  TeV  $pp$  collision data collected by the ATLAS detector  
*JHEP* 1905 (2019) 142, arXiv:1903.01400
- Oct 2018 Search for dark matter in events with a hadronically decaying vector boson and missing transverse momentum in  $pp$  collisions at  $\sqrt{s} = 13$  TeV with the ATLAS detector  
*JHEP* 10 (2018) 180, arXiv:1807.11471
- Jul 2018 Search for Dark Matter Produced in Association with a Higgs Boson Decaying to  $b\bar{b}$  at  $\sqrt{s} = 13$  TeV with the ATLAS Detector using 79.8 fb<sup>-1</sup> of  $pp$  collisions  
*ATLAS-CONF-2018-039* (non-peer-reviewed ATLAS publication)  
Proceedings
- Dez 2018 Search for Dark Matter in association with a hadronically decaying  $Z'$  vector boson with the ATLAS detector in  $pp$  collisions at 13 TeV  
*PoS LHCP2018* (2018) 016 (Proceedings)
- Nov 2015 Performance of a First-Level Muon Trigger with High Momentum Resolution Based on the ATLAS MDT Chambers for HL-LHC  
*NSS/MIC 2015* (Proceedings), arXiv:1511.09210

## Talks and posters

### Invited talks

- Feb 2020 **Dark matter searches with the ATLAS detector at the LHC**, *Cavendish Laboratory HEP Seminar*, Cambridge, United Kingdom, seminar talk.

### International conferences

- Jul 2019 **ATLAS Highlights on Dark Matter Searches in Exotic Models**, *XIII International Workshop on Interconnections between Particle Physics and Cosmology*, Cartagena, Columbia, conference talk.
- Oct 2018 **Search for dark matter produced in association with a Higgs boson decaying to  $b\bar{b}$** , *Puzzle of Dark Matter Workshop*, DESY Hamburg, Germany, Young Scientist Forum talk.
- Jun 2018 **Search for Dark Matter in association with a hadronically decaying  $Z'$  vector boson with the ATLAS detector in  $pp$  collisions at 13 TeV**, *Sixth Annual Conference on Large Hadron Collider Physics*, Bologna, Italien, poster.

### National conferences

- Sep 2019 **Signal reweighting using BDTs**, *ATLAS Germany Meeting*, Munich, Germany, parallel talk.
- Mar 2019 **Dark Matter + Mono- $h(b\bar{b})$ : How to get rid of the multijet background using the object-based  $E_T^{\text{miss}}$  significance**, *DPG spring meeting*, Aachen, Germany, parallel talk.

- Sep 2018 **Object-based  $E_T^{\text{miss}}$  significance in Mono- $H(\bar{b}b)$** , *ATLAS Germany Meeting*, Freiburg, Germany, parallel talk.
- Mar 2018 **Search for Dark Matter produced in association with a hadronically decaying W or Z boson with ATLAS Run-2 data**, *DPG spring meeting*, Würzburg, Germany, parallel talk.
- Mar 2017 **Search for Dark Matter produced in association with a hadronically decaying W or Z boson with ATLAS Run-2 data**, *DPG spring meeting*, Münster, Germany, parallel talk.
- Mar 2017 **Development of a new Level-0 Muon Trigger for the ATLAS Experiment at High-Luminosity-LHC**, *DPG spring meeting*, Münster, Germany, parallel talk.
- Mar 2016 **Development of fast track reconstruction algorithms for the ATLAS MDT-precision-chamber-based Level-0 Muon Trigger at HL-LHC**, *DPG spring meeting*, Hamburg, Germany, parallel talk.
- Mar 2016 **Study of the MDT-precision-chamber-based Level-0 Muon Trigger selectivity for the ATLAS experiment at HL-LHC**, *DPG spring meeting*, Hamburg, Germany, parallel talk.

## Schools

- Jul 2019 **Fifth Machine Learning in High Energy Physics Summer School 2019**, *DESY*, Hamburg, Germany, 10 days.
- Sep 2017 **49. Herbstschule für Hochenergiephysik 2019**, *University of Siegen*, Maria Laach, Germany, 10 days.

## Awards

- 2010-2016 **Full scholarship.**  
 Studienstiftung des deutschen Volkes (German Academic Scholarship Foundation)  
*The German Academic Scholarship Foundation is Germany's largest, oldest and most prestigious scholarship foundation. The selection process is extremely rigorous and only those students who show outstanding academic and personal promise are chosen. Scholarships are awarded to fewer than 0.5% of German students.*
- 2014 **Teaching award.**  
 Goldene Kreide der Physikfachschaft  
*The "Goldene Kreide" is awarded annually by the student council of the physics department to distinguish outstanding student tutors.*

## Teaching

- 2016/17 **Mechanics**, *TU Munich*, tutor.
- 2012, 2014, 2017 **Electromagnetism and Special Relativity**, *TU Munich*, tutor.
- 2012/13, 2015/16 **Optics**, *TU Munich*, tutor.
- 2011/12, 2012/13 **Linear Algebra**, *TU Munich*, tutor.

2011/12, **Maths introductory course for freshman students**, *TU Munich*, tutor.  
2012/13

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## Outreach

### **ATLAS Masterclass.**

High school students learn about fundamentals of particle physics in lectures and engage in hands-on data analysis. I participated in ATLAS masterclasses by preparing and giving lectures and instructing the students in the hands-on session.

### **Science Slams.**

Science slams are competitive events in which scientists present their research in a given time frame to a diverse audience in an entertaining way. I participated in over 30 such events with a talk about dark matter searches at the Large Hadron Collider, including the Southern German championship.