FLORIAN JONAS

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WORK EXPERIENCE

Sept. 2023 - now — **Postdoctoral Scholar** — Berkeley, US/Geneva, CH
Department of Physics
University of California Berkeley / LBNL

Oct 2018- Aug 2023 — **Scientific assistant (PhD student)** — Münster, DE/Geneva, CH
Insitute for Nuclear Physics
Westfälische Wilhelms-Universität

Jul-Sep 2017 — **Summer Student** — Geneva, CH
European Organization for Nuclear Research (CERN)

Jan-Mar 2016 & Jul+Sep 2016 — **Student assistant** — Münster, DE
Institute for Theoretical Physics
Westfälische Wilhelms-Universität

Jul 2012 — **Internship** — Cologne, DE
German Aerospace Center (DLR)

EDUCATION

2018- Aug 2023 — **Doctor of Natural Sciences (Physics)** — Geneva, CH
Westfälische Wilhelms-Universität

with distinction (summa cum laude)

Thesis: *Probing the initial state of heavy-ion collisions with isolated prompt photons*
Supervision: C. Klein-Boesing, A. Andronic, C. Loizides; stationed at CERN in collaboration with Oak Ridge National Lab (ORNL)

2016-2018 — **Master of Science (Physics)** — Münster, DE
Westfälische Wilhelms-Universität

Thesis: *Measurement of ω and η mesons via their three pion decay with ALICE in pp collisions at $\sqrt{s} = 7TeV$* · Grade: 1.0 (with distinction)

2013-2016 — **Bachelor of Science (Physics)** — Münster, DE
Westfälische Wilhelms-Universität

Thesis: *Simulations for optimization of ω-reconstruction at ALICE* · Grade: 2.0

2005-2013 — **Abitur** — Hamm, DE
Freiherr-vom-Stein Gymnasium

Advanced courses in physics and mathematics. The school was bilingual, which means some classes were taught in English. · Grade: 1.4

Jul-Dec 2010 — **Student exchange** — Tauranga, NZ
Otumoetai College

LANGUAGES

German	·	Mother tongue
English	·	Fluent in spoken and written form
French	·	Basic (simple words & phrases only)

COMPUTING SKILLS

Word processing	·	LaTeX, MS Office
Coding	·	C++, ROOT, Python
Other	·	PYTHIA, MCFM JetPhox,Geant IncNLO,CEPH SLURM

TALKS & CONFERENCES

2 plenary talks, 14 contributed talks and 3 posters since 2019

2025 · Plenary talk at the 161th LHCC Meeting OPEN Session
ALICE status report

2024 · Talk at the Workshop on High Luminosity LHC and Hadron Colliders
High-density QCD physics and the study of the QGP in the high-lumi LHC era

2024 · Plenary talk at 12th Hard Probes conference
Future Facilities: Heavy-ion physics at the LHC

2024 · Talk at the Physics with high-luminosity proton-nucleus collisions at the LHC - Workshop
ALICE studies and plans in hadronic proton-nucleus collisions at the LHC

2024 · Multi-exp talk at 12th LHCP conference
Heavy-ion physics at the HL-LHC experiments

2024 · Talk at ALICE USA meeting at Yale
Prompt photons: A versatile probe for heavy-ion collisions

2023 · Talk at Joint ECFA-NuPECC-APPEC activity workshop: Synergies between the EIC and the LHC
Connecting forward LHC and the EIC: the ALICE FoCal upgrade

2023 · Poster at 156th LHCC Meeting
The ALICE Forward Calorimeter (FoCal) upgrade: physics program and prototype performance

2023 · Talk & Poster at 798. WE-Heraeus-Seminar: Forward Physics and QCD at the LHC and EIC
Measuring prompt photon production with the ALICE Forward Calorimeter (FoCal) upgrade

2023 · Talk at 30th Quark Matter Conference
Forward Calorimeter (FoCal): Physics and performance

2023 · Talk at 11th Hard Probes Conference
Probin the initial state of nuclear collisions using isolated prompt photons with ALICE

2022 · Talk at ALICE USA meeting
Isolated photon production in pp and p–Pb collisions at $\sqrt{s_{NN}} = 8$ *TeV and* 8.16 *TeV*

2022 · Talk at Forward QCD: open questions and future directions (workshop)
Prompt photon physics with the ALICE FoCal

2022 · Invited speaker at Oak Ridge National Laboratory physics division seminar
Probing the initial state of nuclear collisions with isolated photons at the LHC

2022 · Invited speaker at Institute for nuclear physics (Münster) seminar
Probing the initial state of nuclear collisions with isolated photons at the LHC

2020 · Talk at 40th ICHEP conference
ω and η' production in proton-proton collisions at the LHC measured with ALICE

2019 · Talk at DPG Spring Meeting
Measurement of ω mesons in pp collisions at $\sqrt{s} = 7$ TeV

2019 · Poster at 137th LHCC meeting
Measurement of ω and η mesons via their three pion decay with ALICE in pp collisions at $\sqrt{s} = 7$ TeV

older talks from 2016-2018 are not listed

PUBLICATIONS

publications with major contributions:

2025 · ALICE collaboration, *Measurement of isolated prompt photon production in pp and p–Pb collisions at the LHC*
arXiv:2502.18054 (submitted to EPJC)
Contribution: PC member, main analyzer

2024 · ALICE collaboration, *Measurement of ω meson production in pp collisions at $\sqrt{s} = 13$ TeV*
arXiv:2411.09432 (submitted to JHEP)
Contribution: PC member, main paper writer

2024 · ALICE collaboration, *Measurement of the inclusive isolated-photon production cross section in pp and Pb−Pb collisions at $\sqrt{s_{NN}} = 5.02$ TeV*
arXiv:2409.12641 (accepted at EPJC)
Contribution: PC member & theory calculations

2023 · ALICE collaboration, *Performance of the ALICE Electromagnetic Calorimeter*
JINST 18 (2023) 08, P08007
Contribution: photon performance studies; track matching performance studies; editorial work

2023 · FoCal collaboration, *Performance of the electromagnetic and hadronic prototype segments of the ALICE Forward Calorimeter*
JINST 19 P07006 (2024)
Contribution: participation in test beam activities & event reconstruction

2021 · Jonas, F. & Loizides, C. *Centrality dependence of electroweak boson production in PbPb collisions at the LHC.*
Phys. Rev. C 104, 044905
Contribution: main analyzer & main paper writer

2020 · Acharya, S. et al. *Production of ω mesons in pp collisions at $\sqrt{\mathbf{s}} = \mathbf{7}$ TeV*
Eur. Phys. J. C 80, 1130
Contribution: main analyzer & main paper writer

public notes:

2025 · Jonas, F. et al, *Assessing the mental health state of LHC scientists*
ALICE-PUBLIC-2025-001, CMS NOTE-2025-001
Contribution: data analysis of survey results & organisation

2024 · ALICE collaboration, *Technical Design Report of the ALICE Forward Calorimeter (FoCal)*
CERN-LHCC-2024-004 ; ALICE-TDR-022
Contribution: photon performance studies

2023 · ALICE collaboration, *Physics performance of the ALICE Forward Calorimeter upgrade*
ALICE-PUBLIC-2023-004
Contribution: simulation studies of prompt photon production & response of detector to photons

2023 · ALICE collaboration, *Physics of the ALICE Forward Calorimeter upgrade*
ALICE-PUBLIC-2023-001
Contribution: simulation studies of prompt photon production

2020 · ALICE collaboration, *Letter of Intent: A Forward Calorimeter (FoCal) in the ALICE experiment*
CERN-LHCC-2020-009, LHCC-I-036
Contribution: π^0 reconstruction efficiency studies, beampipe conversion studies

publications in preparation:

2024 · ALICE collaboration, *Measurements of the production of $W^{\pm}$ and Z^0 bosons in pp collisions at $\sqrt{s} = 13$ TeV*
PC member, post CR1, IRC review

Member of Internal Review Committe (IRC) for two additional upcoming publications

CERTIFICATES & AWARDS

Thesis award · ALICE Thesis Award 2024

Best poster prize · 798. WE-Heraeus-Seminar: Forward Physics and QCD at the LHC and EIC

English · ESOL Level 2 Certificate · University of Cambridge

French · Attestation de réussite DELF · Level A2

ROLES IN COLLABORATION

ALICE Junior Representative · representing the interest of juniors within the organization; discussions with ALICE management and collaboration board; organization of events and workshops

ALICE Jet & Photon PAG coordinator · Coordinating ALICE efforts for jet measurements and hard photon observables

PROJECTS / ACTIVITIES

Physics · measurement of isolated prompt photon production in pp and p–Pb collisions in $\sqrt{s_{\mathrm{NN}}} = 8.16\,\mathrm{TeV}$ with ALICE (arXiv:2502.18054); employing multiple approaches for purity determination (template fitting & ABCD method); usage of JetPhox and IncNLO program to obtain theory calculations

Physics · Studying jet energy loss through Bayesian inference with the JETSCAPE framework. Focus on the implementation of photon observables in the JETSCAPE framework (ongoing)

Physics · reconstruction of ω vector mesons in pp collisions with ALICE (arXiv:2411.09432 & Eur. Phys. J. C 80, 1130): first developments of analysis task which has been used in several subsequent analyses of ω and η' production; analysis required reconstruction and identification of charged tracks as well as photon reconstruction using three different methods (PHOS, EMCal and conversions in tracker)

Physics/phenomenology · study of centrality dependence of electroweak boson production (Phys. Rev. C 104, 044905) using MCFM program and Glauber model investigating possible centrality biases in measurements and impact of the nuclear neutron skin on $W^{\pm}$ production

Physics/phenomenology · working together with a PhD student from the theory department of the University of Muenster to study γ-jet correlations in ALICE FoCal and TPC acceptance using POWHEG NLO program and Pythia shower algorithms

Computing · leading role in developing the new ALICE EMCal analysis framework for the ALICE online-offline computing system (O^2); porting of EMCal clusterizer, implementation of crucial features such as cluster-track matching using kdtree algorithm

Computing · system administrator of a computing cluster used by the ORNL group at CERN. The cluster includes a distributed file system (ceph) and job management (slurm)

Performance · multiple studies for expected performance of ALICE Foward Calorimeter (FoCal) Upgrade: study of π^0 reconstruction efficiency; study of effect of beampipe on conversions at forward rapidity; studies on expected performance of isolated prompt photon measurements with FoCal (ALICE-PUBLIC-2023-001, ALICE-PUBLIC-2023-004, ALICE-TDR-022)

Performance · ongoing efforts in quality assurance and calibration of ALICE EMCal detector; detailed studies of electron E/p and impact of different EMCal nonlinearity parametrizations; multiple contributions to EMCal performance paper (JINST 18(2023) 08 P08007)

Performance · trigger coordinator for EMCal Run 3 efforts

Hardware · assisting role during multiple accesses for repairs on EMCal detector; assisting role during repairs on Transition Radiation Detector (TRD) modules during LS2; participation in multiple test beam activities for the FoCal prototype at CERN PS and SPS (JINST 19 P07006 (2024))

Supervision · supervision of multiple CERN summer students; supervision of PhD students at UC Berkeley and University of Muenster

Outreach · moderator for multiple ALICE masterclasses for school students; ALICE tour guide for the public

Service task · train operator for ALICE analysis trains, steering and managing the access of analyses to the ALICE datasets and computing time