

Alexander Puck Neuwirth

Theoretical and Computational Particle Physicist

Milan, Italy • alexander.neuwirth@unimib.it • alexander-neuwirth.com • orcid.org/0000-0002-2484-1328
github.com/APN-Pucky • gitlab.com/APN-Pucky • scholar.google.com/citations?user=qdaEI4YAAAAAJ
 INSPIRE-HEP • Codeberg • Milano-Bicocca faculty page

Education

University of Münster *Münster, Germany*
PhD in Theoretical Physics *2024*
 • Thesis: "Precision Computations for Photons, Jets and BSM-Particles at the LHC"
 • Advisors: Prof. Dr. Michael Klasen, Prof. Dr. Christian Klein-Bösing

Experience

Research Fellow, Department of Physics "Giuseppe Occhialini" *Milan, Italy*
University of Milano-Bicocca *2024 – present*
 • Precision predictions for photon production, electroweak corrections and Monte Carlo event generators

Professore a contratto, Laboratorio di Informatica I (academic year 2024/2025) *Milan, Italy*
University of Milano-Bicocca *2024 – 2025*
 • Taught in English; course materials prepared in Italian

Publications

Photon Fragmentation Functions in LHAPDF: Existing Sets and a Pythia-Based Extraction Aug 2026
Alexander Puck Neuwirth
arxiv.org/abs/2608.15944 (arXiv preprint)

pylhe: A Lightweight Python Interface to Les Houches Event Files July 2026
Alexander Puck Neuwirth, Matthew Feickert, Lukas Heinrich, Eduardo Rodrigues
[10.21105/joss.11128](https://doi.org/10.21105/joss.11128) (Journal of Open Source Software, 11(126), 11128)

Conversion of Photons to Dileptons in the Kroll-Wada and Parton Shower Approaches June 2025
Tomáš Ježo, Michael Klasen, Alexander Puck Neuwirth
[10.1007/JHEP03\(2026\)024](https://doi.org/10.1007/JHEP03(2026)024) (JHEP 03 (2026) 024)

Prompt Photon Production with Two Jets in POWHEG Sept 2024
Tomáš Ježo, Michael Klasen, Alexander Puck Neuwirth
[10.1007/JHEP02\(2025\)125](https://doi.org/10.1007/JHEP02(2025)125) (JHEP 02 (2025) 125)

Combination and Reinterpretation of LHC SUSY Searches Mar 2024
Alexander Feike, Juri Fiaschi, Benjamin Fuks, Michael Klasen, Alexander Puck Neuwirth
[10.1007/JHEP07\(2024\)122](https://doi.org/10.1007/JHEP07(2024)122) (JHEP 07 (2024) 122)

Di-Electron Production at the LHC: Unravelling Virtual-Photon and Heavy-Flavour Contributions Jan 2024
Anton Andronic, Tomáš Ježo, Michael Klasen, Christian Klein-Bösing, Alexander Puck Neuwirth
[10.1007/JHEP05\(2024\)222](https://doi.org/10.1007/JHEP05(2024)222) (JHEP 05 (2024) 222)

Electroweak Superpartner Production at 13.6 TeV with Resummino

Apr 2023

J. Fiaschi, B. Fuks, M. Klasen, *A. Newwirth*

[10.1140/epjc/s10052-023-11888-y](https://arxiv.org/abs/10.1140/epjc/s10052-023-11888-y) (Eur. Phys. J. C 83, 707)

Soft Gluon Resummation for Associated Squark-Electroweakino Production at the LHC

Feb 2022

J. Fiaschi, B. Fuks, M. Klasen, *A. Newwirth*

[10.1007/JHEP06\(2022\)130](https://arxiv.org/abs/10.1007/JHEP06(2022)130) (JHEP 06 (2022) 130)

Associated Squark-Electroweakino Production with NLO+NLL Precision

May 2022

Juri Fiaschi, Benjamin Fuks, Michael Klasen, *Alexander Newwirth*

arxiv.org/abs/2205.07298 (Proceedings, 56th Rencontres de Moriond (QCD session))

Open Source

- **pylhe** — core maintainer; lightweight Python interface to Les Houches Event files (Scikit-HEP)
- **LHEUTILS** — author; command-line utilities for LHE event processing
- **LHAPDF** — code contributor to the standard LHC parton-distribution-function library
- **HepMC, Rivet, YODA** — contributor to the shared Monte Carlo event-record and analysis toolchain
- **Gentoo Linux** — developer, maintaining scientific packages in the gentoo-sci overlay

Skills

Programming: C/C++, Fortran, Python, Rust, CUDA, Bash

HEP software: POWHEG-BOX(-RES), PYTHIA 8, GENEVA, Rivet, YODA, FastJet, HepMC, LHAPDF, OpenLoops, RECOLA, MadGraph

Scientific computing: Monte Carlo integration and event generation, adaptive/rejection sampling, HPC and Slurm cluster workflows, reproducible packaging and CI