

Education

- 2022-2025 **PhD student**, *University of Wuppertal*, Wuppertal (Germany), Dynamics of a research program in high-energy physics: the case of supersymmetry (Research Training Group 2696, “Transformations of science and technology since 1800: topics, processes, institutions ”) [*on-going*]
- Feb 2023–
Apr 2023 **Visiting PhD student**, *Medialab, Sciences Po Paris*
- 2021-2022 **M.A**, *Université de Paris*, Paris, History and Philosophy of Science [Class rank: 1st]
Thesis : “Too beautiful to be false, or too beautiful to be true? Searching supersymmetry at the *Large Hadron Collider*”. Supervisors: Olivier Darrigol, Elisa Omodei.
- 2014-2018 **Master 1**, *Ecole Normale Supérieure de Cachan*, Cachan, Fundamental Physics
Full scholarship. Experimental and theoretical physics, mathematics. Options: Symmetries and path integrals; Astrophysics and Cosmology.
- 2012-2014 **PCSI/PC***, *Lycée Berthollet*, Annecy
“Classe préparatoire aux grandes écoles”

Research

- Sep 2020 to
Nov 2021 **Engineer**, *Laboratoire de Sciences Cognitives et Psycholinguistique (LSCP - DEC - École Normale Supérieure)*, Paris
Study of language acquisition across cultures through naturalistic long-form audio recordings. Supervised by Alejandrina Cristia.
 - Creation of a python package for the management, storage and analysis of large datasets ($\mathcal{O}(10^4)$ hours of audio)
 - Signal processing on long-form audio
 - Statistical analysis (bayesian inference)
 - CNRS Training “Basics of Machine Learning and Deep Learning” (28h)
- Oct 2016 –
Jan 2017 **Research Internship**, *Laboratoire Univers et Théories (LUTH - INSU - CNRS)*, Paris Meudon
Influence of the nuclei distribution on the electron capture rates and neutrino scattering in core-collapse supernovae. Supervised by Micaela Oertel.
 - Implementation of electron capture rates and neutrino scattering cross-sections calculations in a core-collapse supernova simulation code (Fortran, C++).
- May 2016 –
Jul 2016 **Research Internship**, *Laboratoire de Physique Nucléaire et des Hautes Énergies (LPNHE - IN2P3 - CNRS)*, Paris
Diphoton analysis and phenomenology for the ATLAS experiment. Supervised by Lydia Roos.
 - New parameterization of the diphoton invariant mass distribution for a spin-2 decaying particle signal (Pythia, ROOT, RooFit, C++, Python, FeynRules, CalcHEP)
 - NLO corrections for the spin-2 signal (MadGraph5_aMC_atNLO)
 - Signal-background interferences
- Oct 2015 –
Jan 2016 **Research Internship**, *Laboratoire d’Annecy-Le-Vieux de Physique Théorique (LAPth - IN2P3 - CNRS)*, Annecy-Le-Vieux
Cosmology. Supervised par Richard Taillet.
 - Creation of an Internet website for students about the history of modern cosmology (<http://cosmology.education/>)
 - Development of several simulations in C++ to illustrate the website.

May 2015 – **Research Internship**, *Laboratoire d'Annecy-Le-Vieux des Particules (LAPP - IN2P3*

Jul 2015 - *CNRS*, Annecy-Le-Vieux

Particle physics for the ATLAS experiment. Supervised by Stéphane Jézéquel.

- Diphoton events analysis and local/global significance calculations with ROOT.
- Analysis of the performance of a new tracker prototype for HL-LHC, using MC simulations
- Development of a simulation to assess the impact of thermal radiation over the temperature of parts of the tracker, as part of the design of a cooling system upgrade
- Development of a simulation to calculate the intersections of charged particles with the sensors of a tracker prototype

Publications

- [1] A. Cristia, **L. Gautheron**, and H. Colleran. “Vocal input and output among infants in a multilingual context: Evidence from long-form recordings in Vanuatu”. In: *Developmental Science (accepted, forthcoming)* (Jan. 2023). DOI: 10.31234/osf.io/bqya7. URL: <https://doi.org/10.31234/osf.io/bqya7>.
- [4] **L. Gautheron**, N. Rochat, and A. Cristia. “Managing, storing, and sharing long-form recordings and their annotations”. In: *Language Resources and Evaluation* (Feb. 2022). DOI: 10.1007/s10579-022-09579-3. URL: <https://link.springer.com/10.1007/s10579-022-09579-3>.
- [5] M. Lavechin, M. de Seyssel, **L. Gautheron**, E. Dupoux, and A. Cristia. “Reverse Engineering Language Acquisition with Child-Centered Long-Form Recordings”. In: *Annual Review of Linguistics* 8.1 (Jan. 2022), pp. 389–407. DOI: 10.1146/annurev-linguistics-031120-122120. URL: <https://www.annualreviews.org/doi/full/10.1146/annurev-linguistics-031120-122120>.
- [6] **L. Gautheron**, M. Lavechin, R. Riad, C. Scaff, and A. Cristia. “Longform recordings : Opportunities and challenges”. In: *LIFT 2020 - 2èmes journées scientifiques du Groupement de Recherche "Linguistique informatique, formelle et de terrain"*. Ed. by T. Poibeau, Y. Parmentier, and E. Schang. Montrouge / Virtual, France: CNRS, Dec. 2020, pp. 64–71. URL: <https://hal.archives-ouvertes.fr/hal-03047153>.

Talks

- [2] **L. Gautheron**. “The many faces of supersymmetry: Supersymmetry across subcultures of High-Energy Physics, 1971–2019”. 2022 History of Science Society Annual Meeting: group session on Historical Epistemology of Particle Physics and Quantum Gravity, Chicago, IL, United States. Nov. 2022.
- [3] **L. Gautheron**. “Who trusts supersymmetry? Probing quantitative methods for investigating research orientations in High-Energy Physics”. 4th International Spring School of the Epistemology of the Large Hadron Collider: The History, Philosophy and Sociology of Large Scale Experiments, Wuppertal, Germany. Mar. 2022.

Journalism

Dec 2019 to **President**, *Société de Production Le Média*, Montreuil

Nov 2020 Management of a production company with more than 12 full-time equivalent workers. Publication Manager. Marketing procedures optimization, development of revenue forecasting models and audience data analysis.

Septemter **Journalist**, *Le Média*, Montreuil

2018 to Sep Specializing in data journalism and book reviews https://www.lemediatv.fr/auteurs/lucas-gautheron-9DAnWoo5Tlav1trWgg_Qlw/articles.

Development

Juillet 2013 **Developer**, *Électricité réseau Distribution de France (ErDF)*, Annecy

- Design of an archive database and search system (PHP/MySQL)
- Automated retrieval of large amounts of data from other company-wide applications.

Mars 2011 à **Developer**, *AssaultCube*

2014 Development of a C++ 3D video game as part of an international team of volunteers

Skills

Computer

Programming Python, C, C++, Fortran

Scientific software numpy, scipy, scikit-learn, MadGraph5_aMC_@NLO, Pythia, ROOT/RooFit, stan

Data Pandas, MySQL, HDF

Web PHP, HTML, JS, CSS

Video Adobe Premiere Pro

Languages

English Toefl IBT: 104

French Native

Spanish Beginner