

Xavier Kervyn

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Born on 18 May 2001. Belgian

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CURRENT INTERESTS

→ String theory, (flat space) holography, scattering amplitudes, conformal bootstrap, twistor theory.

ACADEMIC RESEARCH EXPERIENCE

Max-Planck Institute for Physics Garching, Germany & remote 09/2024
Master Student, MPI String Theory Group 08/2025

- Research on string amplitudes and flat space holography
- Advisor: [Prof. Stephan Stieberger](#)
- Funding: Fondation du Domaine de Villette

Niels Bohr Institute Copenhagen, Denmark 09/2024
Visiting Student, Theoretical High-Energy Physics 01/2025

- Research on the superconformal bootstrap of gauge theories with defects
- Project advisors: [Prof. Charlotte Kristjansen](#) and [Dr. Adam Chalabi](#)
- Funding: LMU Erasmus+ Scholarship, Fondation du Domaine de Villette

Università degli Studi di Padova Padova, Italy & remote 07/2023
Visiting Researcher, Theoretical Physics 06/2024

- Research on integrability in string theory and AdS/CFT; Thermodynamic Bethe Ansatz
- Advisors: [Prof. Alessandro Sfondrini](#) and [Dr. Davide Polvara](#)
- Funding: Fondation du Domaine de Villette

CERN CMS collaboration Meyrin, Switzerland 06/2022
Undergraduate Researcher, ETH Zürich High-Energy Physics group 07/2022

- Research on the new CMS electrocalorimeter for the High-Luminosity phase of the LHC
- Advisor: [Dr. Simone Pigazzini](#) (ETHZ/CERN)
- Funding: ETH Zürich, Department of Physics

ETH Zürich Zürich, Switzerland 09/2021
Undergraduate Researcher, Exoplanets and Habitability group 12/2021

- Research on the LIFE space mission (LIFEsim software), characterizing imperfect nulling
- Advisors: Dr. Felix Dannert and [Prof. Sascha Quanz](#)
- Funding: Swiss-Mobility Program

PUBLICATIONS & PREPRINTS [[Inspire HEP](#) / [Google Scholar](#)]

3. X. Kervyn, S. Stieberger, *Towards a String Worldsheet Description of Flat-Space Holography*, to appear
2. X. Kervyn, D. Polvara and A. Sfondrini, *Thermodynamics of integrable $N=2$ theories, squared*, Feb., 2025. 10.48550/arXiv.2502.10356
1. X. Kervyn, *BMS Symmetries of Gravitational Scattering*, Aug., 2023. 10.48550/arXiv.2308.12979

EDUCATION

Ludwig-Maximilians-Universität München Munich, Germany	10/2023
M.Sc. in Theoretical and Mathematical Physics	–present
<ul style="list-style-type: none"> • Master thesis at Max-Planck Institute for Physics, Garching, Germany • Erasmus+ exchange semester at the University of Copenhagen in the Fall/Winter '24/25 	
Peterhouse, University of Cambridge Cambridge, United Kingdom	10/2022
Master of Advanced Study (MASt) in Applied Mathematics	06/2023
<ul style="list-style-type: none"> • Graduated with First Class Honours (Merit). Awarded 3 scholarships and 3 prizes 	
Ecole Polytechnique Fédérale de Lausanne Lausanne, Switzerland	09/2019
Bachelor of Science in Physics	08/2022
<ul style="list-style-type: none"> • Final year at ETH Zürich, Switzerland (Swiss-Mobility program) • Awarded a fellowship from the Swiss Study Foundation and e-fellows.net 	

THESES & STUDY PROJECTS

5. X. Kervyn, *Bootstrapping $d = 4$, $\mathcal{N} = 4$ Super Yang-Mills in the presence of a $\frac{1}{2}$ -BPS boundary defect*
Individual Study Project, University of Copenhagen, Jan., 2025. Grade: 12/12.
4. X. Kervyn, *Gauge-Gravity Duality*
Individual Study Project, University of Copenhagen, Nov., 2024. Grade: 12/12.
3. X. Kervyn, *BMS Symmetries of Gravitational Scattering*
Part III essay, University of Cambridge, May, 2023. Grade: 86%, Distinction.
2. X. Kervyn, N. Roux, *Towards an automatized analysis framework for the upcoming HL-LHC CMS ECAL*
Student Project, ETH Zürich & CERN CMS collaboration, Jul., 2022. Grade: 6/6.
1. X. Kervyn, *Impact of non-perfect nulls on the detectable population by the LIFE space mission*
Student Project, ETH Zürich, Dec., 2021. Grade: 6/6.

CONFERENCES, SCHOOLS AND WORKSHOPS ATTENDED (*scheduled)

*School on asymptotic symmetries and flat holography, Galileo Galilei Inst., Florence, Italy [link]	05/2025
*Infrared Surprises of Scattering Amplitudes, CERN, Meyrin, Switzerland [link, online]	05/2025
Physics of Machine Learning & ML for Physics, Nordita, Stockholm, Sweden [link, online]	01/2025
Frontiers in Gravity, Niels Bohr Institute, Copenhagen, Denmark [link]	09/2024
PhD School: “Towards Gravity”, Nordita, Stockholm, Sweden [link, online]	08/2024
Celestial Holography Summer School, Perimeter Institute, Waterloo, Canada [link, online]	07/2024
Strings 2024, CERN, Meyrin, Switzerland [link]	06/2024
Carollian Physics and Holography, ESI, Vienna, Austria [link]	04/2024
Workshop [...] in analysis and mathematical physics, LMU, Munich, Germany [link]	10/2023
Celestial 2023, University of Warsaw, Warsaw, Poland [link]	08/2023
Integrability, Dualities and Deformations 2023, Durham University, Durham, UK [link]	07/2023
Young Researchers Integrability School & Workshop, Durham University, Durham, UK [link]	07/2023
Eurostrings 2023, Universidad de Oviedo, Gijon, Spain [link]	04/2023
Young Physicists Forum 2022, ETH Zürich, Zürich, Switzerland [link]	05/2022

CONTRIBUTED TALKS & SEMINARS

Seminar on Scattering Amplitudes, LMU Munich Spinor-Helicity Formalism, Twistor Theory and Scattering Amplitudes	05/2024
Seminar on Generalized Symmetries in QFT, LMU Munich Gauging of Discrete Higher Form Symmetries in non-Abelian Yang-Mills theory	12/2023
DAMTP Part III Seminar Series, University of Cambridge Gravitational Scattering and Covariant Phase Space methods in Gravity	03/2023
DAMTP Part III Seminar Series, University of Cambridge Holography and Twistor methods in AdS_5	12/2022

OUTREACH

Online Seminar, Swiss Study Foundation Organisator, peer event – “The future of CERN and High-Energy Physics”	05/2024
Online Seminar, Swiss Study Foundation Organisator & speaker, peer event – “The role of Symmetries in Physics”	12/2023
Website, online Built a website to share online learning resources in mathematics and physics with like-minded students	2022–...
Classroom Presentation, Lycée Dominique Villars Presenting my curriculum and advertising STEM university studies to high-school students	2019–...

TEACHING EXPERIENCE

Volunteer Tutor remote	06/2022
It Takes a Village / Village Book Builders	03/2023
• 1:1 weekly online tutoring sessions with a 13yo. child in Mukono, Uganda (10 months)	

TECHNICAL SKILLS

Languages: French (native); English, German (full work proficiency); Norwegian, Danish (basics)
Programming: C++ (OOP), Python (NumPy, Pandas, Matplotlib, Seaborn, Plotly.express, SciPy)
Data Analysis: Python (advanced), MATLAB (intermediate), Microsoft Word/Excel/PPT (basics)
Scientific work: \LaTeX (Overleaf), Mathematica, scientific writing, funding search and application

SELECTED AWARDS, GRANTS & SCHOLARSHIPS

Research Grant – Fondation du Domaine de Villette CHF 5'000. Supporting graduate research in Munich and Copenhagen in 2024/2025	10/2024
Erasmus+ Scholarship – Ludwig-Maximilians-Universität Munich €600/month, 5 months. Awarded to support an exchange semester at the University of Copenhagen	05/2024
College Prize in Applied Mathematics – Peterhouse, University of Cambridge £300. Awarded in recognition of my academic achievements	12/2023
Retrospective Scholarship in Mathematics – Peterhouse, University of Cambridge £125. Awarded in recognition of my academic achievements	12/2023

Research Grant – Fondation du Domaine de Villette CHF 5'000. Supporting research and attendance to conferences in the summer 2023	06/2023
Greta Burkill Fund award – Peterhouse, University of Cambridge £300. Supporting attendance to conferences	03/2023
Bruckmann Fund award – Peterhouse, University of Cambridge £300. Supporting extracurricular travels	03/2023
Annual Scholarship – Swiss Study Foundation CHF 20'000. Financial support for master studies at the University of Cambridge	11/2022
Excellence Scholarship – Colbianco Stiftung CHF 2'000. Financial support for master studies at the University of Cambridge	08/2022
Swiss Mobility Program grant – Ecole Polytechnique Fédérale de Lausanne CHF 1'500. Supporting an exchange year at ETH Zurich	09/2021
Baccalaureate Merit Award – Région Provence-Alpes Côte d'Azur Awarded for achieving the highest distinction at the French Baccalaureate	07/2019

ACADEMIC REFERENCES

- **Prof. Stephan Stieberger** (MPP master thesis advisor)
Email: stephan.stieberger@mpp.mpg.de
- **Prof. Niels Obers** (Copenhagen examiner)
Email: obers@nbi.ku.dk
- **Dr. Prahar Mitra** (Cambridge Part III essay setter)
Email: p.mitra@uva.nl

Last updated on Mon 17th Feb, 2025. Certificates, references and transcripts available upon request.