Xavier Kervyn [iD]

Peterhouse, 2 Trumpington St.
CB2 1RD Cambridge, Cambridgeshire, UK
Born on 18 May 2001. Belgian

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RESEARCH INTERESTS

Keywords: quantum gravity, supergravity, formal string theory, black holes, asymptotic symmetries, symmetries and dualities, SUSY, integrability, twistors, celestial amplitudes, holography.

ACADEMIC EMPLOYMENT

Università degli Studi di Padova, Padova, Italy   2023
Summer Research Student, Department of Physics and Astronomy – Theoretical Physics

- Will join Prof. A. Sfondrini to study the spectrum of a new integrable 2D QFT, deriving its Bethe Ansatz equations and looking and its relations to string theory & the holographic conjecture in AdS$_3$.
- Funding: Swiss Study Foundation.

EDUCATION

Peterhouse, University of Cambridge, Cambridge, United Kingdom   2022-23
Master of Advanced Study (MASt) in Applied Mathematics

- Part III essay (thesis): *BMS symmetries of gravitational scattering*. Advisor: Dr. Prahar Mitra
- Coursework in theoretical physics: QFT; GR; string theory; SUSY; symmetries, particles and fields

Ecole Polytechnique Fédérale de Lausanne, Lausanne, Switzerland   2019-22
Bachelor of Science in Physics

- Final year at **ETH Zürich** (Zurich, Switzerland) in the frame of the Swiss-Mobility programme
- Final year summer project within the CMS collaboration at CERN (Dr. Simone Pigazzini)
- Semester project within the Exoplanets and Habitability group: LIFE mission (Prof. Sascha Quanz)

AWARDS, GRANTS & SCHOLARSHIPS

Greta Burkill Fund award *– Peterhouse, Cambridge*   2023

Bruckmann Fund award *– Peterhouse, Cambridge*   2023

Annual scholarship *– Swiss Study Foundation*   2022
CHF 20'000 awarded for Masters studies at the University of Cambridge [press statement]

Scholarship *– Colbianco Stiftung*   2022
CHF 2'000 awarded for Masters studies at the University of Cambridge

Scholarship *– e-fellows.net*   2022
Admitted to the career and student network due to my results and extracurricular commitment

Fellowship *– Swiss Study Foundation*   2022
The SSF supports supports outstanding students willing to contribute to science and society

Swiss Mobility Program scholarship *– EPF Lausanne*   2021
CHF 1'500 awarded due to my results to pursue my studies at ETH Zurich

Publications & Preprints

1. No peer-reviewed publications yet, working on it!

Conferences, Schools and Workshops attended (*scheduled)

*Integrability, Dualities and Deformations 2023, Durham, UK [link]	07/2023
*Young Researchers Integrability School & Workshop 2023, Durham, UK [link]	07/2023
Eurostrings 2023, Gijon, Spain [link]	04/2023
Young Physicists Forum 2022, ETH Zürich, Switzerland [link]	05/2022

Contributed Talks & Seminars

1. **Kervyn, X.** (Mar. 2023) Gravitational scattering and covariant phase space methods in gravity
   (Talk, given in the frame of the Cambridge DAMTP Part III Seminars series)

2. **Kervyn, X.** (Dec. 2022) Holography and Twistor methods in AdS_5
   (Talk, given in the frame of the Cambridge DAMTP Part III Seminars series)

3. **Kervyn, X.**, Roux, N. (Jul. 2022) Towards an automatized analysis framework for the upcoming CMS ECAL upgrade, aiming at improved amplitude and time resolution with HL-LHC
   (Bachelor project, *viva voce* examination)

4. **Kervyn, X.** (Dec. 2021) Measure and characterisation of the impact of non-perfect nulls on the detectable planet population by LIFE, based on different stellar and planetary properties
   (Semester project, *viva voce* examination)

Teaching Experience

Tutor (volunteer), Village Book Builders   2022-23

- 1:1 weekly tutoring sessions with a child in Uganda. Helping with mathematics, physics and English.
- VBB fights inter-generational poverty in low-income countries and prevents dropout at school.

Specific Skills

Programming: C++ (OOP), Python (NumPy, Pandas, Matplotlib, Seaborn, Plotly.express, SciPy)
Data Analysis: Python (advanced), MATLAB (intermediate), Microsoft Excel (elementary)
Scientific work: LaTeX, 3+ years of experience in writing scientific reports, Mathematica

Academic References

- **Dr. Prahar Mitra** (*Part III essay setter*). Office B0.02, Department of Applied Mathematics & Theoretical Physics, University of Cambridge, Wilberforce Road, Cambridge CB3 0WA, UK. Email: pm729@damtp.cam.ac.uk

- **Prof. Matthias Gaberdiel** (*Lecturer for Quantum Mechanics I*). Office HIT K 23.1, Institut für Theoretische Physik, ETH Zürich, Wolfgang-Pauli-Str. 27, CH-8093 Zürich, Switzerland. Email: gaberdim@ethz.ch. Phone: +41 44 633 25 82

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