

Gabriel Bliard

IRIS Adlershof, Humboldt-Universität zu Berlin, Zum Großen Windkanal 2, 12489 Berlin Germany
gabriel.bliard@physik.hu-berlin.de • +33 (0) 615656752 • ORCID: 0000-0002-4824-3760

EDUCATION

Humboldt-Universität zu Berlin, Berlin, Germany

- Ph.D student in Theoretical Physics Jul 2019 – Present
 - Thesis: Perturbative and non-perturbative study of correlators in AdS_2/CFT_1
 - Adviser: Dr. Valentina Forini
 - Focus: AdS/CFT, Conformal Bootstrap, Supersymmetry
 - Marie Skłodowska Curie Early stage researcher.
 - Associated member of RTG 2575 “Rethinking Quantum field theory”

University of Cambridge, Cambridge, England

- MMath in Theoretical Physics and Mathematics, Part III Math Sep 2018 – Jun 2019
 - First Class Honours with Merit 74/100
- B.A in Natural Sciences (Physics) Oct 2015 – Jun 2018
 - Triple First Class Honours

Lycée Marc Chagall, Reims, France

- Baccalauréat Scientifique Jul 2014
 - Mention Très Bien, 19.92/20

Conservatoire National de Reims (CNR), Reims, France

- Certificat d’Etudes Musicales, Trumpet, Music theory & Chamber music 2001–2015
 - Mention Très Bien

AWARDS & SCHOLARSHIPS

- Marie-Sklodowska-Curie grant for Early stage researchers 2019
- Horne Prize for Physical Sciences 2018
- Clare College Honorary Foundation Scholarship for one year 2018
- Clare College Foundation Scholarship 2017
- Clare College Scholarship 2016
- French Olympiades in Chemistry (1st prize regional and 6th prize national) 2014

PUBLICATIONS & PREPRINTS

- [5] [G. Bliard](#), I. Costa, V. Forini, “Holography on the lattice: the string worldsheet perspective” submitted to European Physics Journal Special Topics, invited contribution.
- [4] [G. Bliard](#), “Notes on n -point Witten diagrams in AdS_2 ” J. Phys. A: Math. Theor. 55 325401
- [3] [G. Bliard](#), I. Costa, V. Forini and A. Patella, “Lattice perturbation theory for the null cusp string” Physical Review D 105, 074507 (2022)
- [2] L. Bianchi, [G. Bliard](#), V. Forini and G. Peveri, “Mellin Amplitudes for 1d CFT,” JHEP2021, 95 (2021).
- [1] L. Bianchi, [G. Bliard](#), V. Forini, L. Griguolo, and D. Seminara, “Analytic bootstrap and Witten diagrams for the ABJM Wilson line as defect CFT₁” JHEP 2020, 143 (2020).

ACTIVE PROJECTS

- [] [G. Bliard](#), P. Ferrero, “Mellin-Bootstrapping the 1/2-BPS Wilson line in ABJM”
- [] J. Barrat, [G. Bliard](#), P. Ferrero, C. Meneghelli, G. Peveri, “Bootstrapping the 6-point function in N=4 SYM”
- [] [G. Bliard](#), D. Correa, M. Lagares “Bootstrapping the defect theory in $AdS_3 \times S^3 \times S^3 \times S^1$ ”

RESEARCH EXPERIENCE

Università di Parma, Parma, Italy

Oct 2020 – May 2020

- Research Visit, Theoretical physics department
 - Project: Topological quantum mechanics, AdS_2/CFT_1 and the Fermi Gas approach.
 - Supervisor: Prof. Luca Griguolo

Perimeter Institute for Theoretical Physics, Waterloo, Canada

Aug 2019 – Sep 2020

- Research Visit
 - Project: $1/2$ BPS Wilson line in ABJM and boundary deformations in $AdS_4 \times CP^3$.

University of Cambridge, Centre for Mathematical Studies Mar 2019

- MMath Research project: *Instantons*
 - Supervisor: Prof. Nick Dorey

University of Cambridge, Condensed Matter group, Cavendish Laboratory Aug 2017

- B.A Research project: *Magnetic Monopoles and Spin-Ice*
 - Supervisor: Prof. Claudio Castelnovo

Heidelberg University, Department of Theoretical Physics Aug 2017

- Research project: Cosmic Structure Formation and Kinetic Field Theory.
 - Supervisor: Prof. Matthias Bartelmann

PRESENTATIONS INVITED TALKS

- [24] Mellin Amplitudes for 1D CFT [recording] Jul 2021
Integrability in Gauge and String theory (IGST 2021) (in-person)
- [23] Tools for AdS_2/CFT_1 Jan 2020
H2020 Europlex Marie Curie fellows meeting (in-person)

POSTERS

- [22] Bootstrapping and Computing AdS_2/CFT_1 Correlators Jul 2022
IGST 2022, Budapest
- [21] AdS_2/CFT_1 Correlators Nov 2021
RTG2575 Retreat, Schloss Steinhofel
- [20] $1/2$ BPS defect in ABJM Bootstrapped correlators & Mellin amplitudes Sep 2021
Quantum field theory at the boundary, Mainz
- [19] Applications of the 1D Mellin amplitude [recording] Jun 2021
Cortona-Young Video Poster (in-person)
- [18] Tools for AdS_2/CFT_1 [recording] Oct 2020
Holotube 2020
- [17] Witten diagrams and Bootstrap for the $1/2$ BPS Wilson line [recording] Jun 2020
Cortona-Young Video Poster

SEMINARS

- [16] Double-bootstrap of $1/2$ BPS Wilson line in ABJM. Jul 2022
Humboldt Universität QFT & Strings Seminar series.
- [15] From k_B to α_S ; how to apply thermodynamics to string theory. May 2022
Rethinking QFT Student seminar
- [14] Discretising strings and holographic defects Apr 2022
Europlex progress workshop-Odense
- [13] Analytic bootstrap and Witten diagrams for the ABJM Wilson line Oct 2020
Humboldt Universität QFT & Strings Seminar series.
- [12] Three derivations to understand Mellin Formalism May 2021
Università di Parma
- [11] Analytic bootstrap and Witten diagrams for the ABJM Wilson line Jul 2020
EuroPLEx Seminar Zoom Meeting (in-person)
- [10] Guest speaker at the PhD Seminar series May 2020
City, University London
- [9] Instantons 2019
Cambridge Part III Mathematics seminar
- [8] Kinetic field theory and cosmic structure formation 2019
Cambridge Part III Mathematics seminar

JOURNAL CLUBS

- | | |
|---|----------|
| [7] 1D Mellin amplitudes and integrability
London Integrability Journal Club (LIJC) | Jun 2021 |
| [6] Mellin formalism for 4 point correlators
Wilson loops Journal club Parma-Bologna-Milano | May 2021 |
| [5] Non-abelian Gauge theory in AdS ₂ and TQM
Universita di Parma JC | Feb 2021 |
| [4] Abelian Gauge theory in AdS ₂ and TQM
Universita di Parma JC | Jan 2021 |
| [3] Superspace methods for 1D CFTs
Rethinking Quantum Field Theory seminar series | Nov 2020 |
| [2] Witten diagrams
Europlex Marie Curie fellows student seminar | Aug 2020 |
| [1] Methods in superspace, Mellin space and Conformal field theory
University of London PhD seminar series | Feb 2020 |

COURSES & SCHOOLS

RTG2575 & Humboldt-Universität Courses ,

- Topological recursion, matrix models and intersection theory Mar 2021 – Oct 2021
 - Lecturer: Prof. Gaetan Borot
 - 48 hour of lectures, 20 hours of tutorials and 1 final exam

BUSSTEP School, England

Jan 2021

- Multidisciplinary online school for theoretical physics PhD students. Topics included
 - Advanced Quantum field theory (Z. Komargodski)
 - Amplitudes and applications (Y. Huang)
 - Conformal field theory (A. Bissi)
 - Lattice field theory (A. Patella)

Superstrings Summer school, ICTP

Sep 2020

- Online school for theoretical physics PhD students. Topics included
 - Anomalies in quantum field theory (C. Córdova)
 - Fun in Two Space-Time Dimensions (Z. Komargodski)
 - Mock Modularity (A. Dabholkar)

Virtual Bootstrap School , Harvard

Aug 2020

- Online school on topics relating to the Bootstrap program
 - S-matrix Bootstrap (P. Vieira)
 - Superconformal bootstrap (S. Pufu)
 - Lorentzian and analytic bootstrap (S. Caron-Huot)

Young Researcher's Integrability School , DESY, Hamburg

Feb 2020

- Six-day Postgraduate course; 28 hours of lectures 7.5 hours of tutorials.
 - Superconformal field theories (L. Eberhardt)
 - Seiberg-Witten Theory (M. Martone)
 - Chiral algebras (M. Lemos)
 - AGT correspondence (B. Le Floch)

Matrix Models, King's College London

Jan 2020-Mar 2020

Two-hour weekly course given by Prof. Dionysios Anninos exploring the mathematical tools and structure of matrix models in the context of string theory.

LACES winter school, Galileo Galilei Institute, Florence

Dec 2019

- Three-week school on gauge theories and string theory
 - Dynamics of N=1 Gauge fields (N. Mekareeya)
 - Dynamics of Quantum Fields (Z. Komargodski)
 - SuperGravity (M. Zagermann)
 - Black holes (D. Cassani)
 - D-brane Physics (C. Bachas)

Europlex 2019 workshop, Università di Parma

Sep 2019

- A week-long workshop, exploring lattice QCD, the physics beyond the standard model, challenges of large data computing and ethics and communication in research.

**OUTREACH,
TEACHING &
ADMIN**

Teaching

- Co-organiser of weekly PhD seminar sessions (City, University of London) Oct 2019 – Feb 2020
- Tutored mathematics and physics to students from A-level to third year university 2015 – 2019
- Mentor to two aspiring theoretical physicists 2018–2020

Outreach

- Europlex European researcher’s night video soundtrack Nov 2020
- Guest speaker at the Peterborough Astronomy association “Equations written in the stars” May 2020
- Led an activity at the Cambridge ChaOS Science Festival 2017
- Managed the Clare College Rowing Residential Outreach Programme 2018
- Organised activities with Reims Planetarium, France 2014–2015
- Outreach channel via twitter @FieldsStrings 2019–Present

Administrative duties

- Student seminar organiser Aug 2022–Present
- Student representative Mar 2022–Present

**WORK
EXPERIENCE
& LEADERSHIP
ROLES**

- **President** of the Cambridge University Jazz Orchestra 2017 – 2018
- **Captain** of Cambridge Clare Boat Club men’s rowing 2017 – 2018
- **Vineyard work & Sommelier** 2011 –Present

LANGUAGES

- English: Mother tongue
- French: Father tongue
- Italian: B2 CEFR (speaking, reading, writing).
- German: B1 CEFR (speaking, reading, writing).

SKILLS

L^AT_EX, Mathematica, Python, C++, MATLAB, Sommelier, Classical & Jazz Trumpet

REFERENCES

- **Dr. Valentina Forini**
Group leader & Lecturer of Physics (HU-Berlin, City UL)
2’22, IRIS Adlershof, Humboldt-Universität zu Berlin
Zum Großen Windkanal 2, 12489 Berlin, Germany
valentina.forini@physik.hu-berlin.de • +49 (0)30 2093 66455
- **Prof. Luca Griguolo**
Professor of Physics,
Università di Parma
Dipartimento di Scienze Matematiche, Fisiche e Informatiche
luca.griguolo@fis.unipr.it • +39 (0)521 905220
- **Prof. Domenico Seminara**
Professor of Theoretical Physics
University of Florence
Department of Physics and Astronomy
seminara@fi.infn.it • +39 (0)554572315
- **Dr. Lorenzo Bianchi**
Professor of Theoretical Physics
University of Torino
Department of Physics
lorenzo.bianchi@to.infn.it • +39 (0)11 6707240