

BORIS BOLLIET

French, born on March 11th 1990 (33 years old)

Phone: +33781267783 \diamond email: boris.bolliet@gmail.com \diamond webpage: borisbolliet.github.io

Senior Research Associate at Cambridge University, DAMTP

Started September 2022

(in Blake Sherwin's group)

Member of Kavli Institute for Cosmology, Cambridge (since 2023)

Guest Researcher at the Flatiron Institute (CCA) in New York (since 2021)

Co-Leading the SZ analysis working group in *The Simons Observatory* (since 2020)

Member of ACT, SO, CMB-S4 and LSST DESC

Previous Positions:

Research Associate at Columbia University

September 2020 - August 2022

Post-doc in Colin Hill's group

Research Associate at the University of Manchester

September 2017 - August 2020

ERC-funded position in Jens Chluba's group

Research Interests: Theoretical, Observational, Computational Cosmology and Astrophysics, Machine Learning. Thermal and kinetic Sunyaev Zeldovich Effects, Weak Lensing, CMB Spectral Distortions, Dark Matter, Dark Energy, Inflation.

Citation Summary: 44 citeable papers (31 published) - Total citations: 1,223 (1,100 published) - Citations per paper: 27.8 (35.5 published) - h-index: 21 - Link to publication list: [inspire-hep](https://inspire-hep.net/literature/author/index.php?author=Bolliet%2C+Boris).

EDUCATION

Université Grenoble Alpes

September 2013 - August 2017

Grenoble, France

Ph.D. (2017), M.A. Phys. (2014)

Ph.D. Thesis: *Beyond Einstein's Theory of Gravitation: Some Aspects of Loop Quantum Cosmology, Black Holes and the Dark Universe*

Thesis Advisor: Aurélien Barrau

École Normale Supérieure de Lyon

September 2009 - August 2014

Lyon, France

S.B. Phys. (2010), M.A. Phys. (2014)

Lycée Louis-Le-Grand

September 2007 - August 2009

Paris, France

Classes Préparatoires in Physics (Selective scientific studies for the French Grandes Écoles)

OTHER POSITIONS HELD

Fulbright Fellow at Louisiana State University

August - December 2016

Baton Rouge, LA, USA

Fulbright Visiting Student Researcher

Research Project: *Non-Gaussianity in Loop Quantum Cosmology*

Advisor: Ivan Agullo

Intern at The University of Manchester

March - August 2014

Manchester, UK

Master's Thesis: *The Equation of State Approach to Cosmological Perturbations in Dark Energy*

Thesis Advisor: Richard Battye

Consultant at the French Embassy in India

July - December 2012

New Delhi, India

Project: *Report on the Scientific Landscape and Higher Education in India*

Advisor: Véronique Briquet-Laugier

Intern at Brookhaven National Laboratory

June - August 2010

Upton, NY, USA

Bachelor's Thesis: *Two-particle correlations in heavy ion collisions at RHIC*

Thesis Advisor: Paul Sorensen

HONORS AND AWARDS

Selected Participant at the Aspen Center for Physics workshop on CMB	2021
Fulbright Fellowship (~15 Grantees/year in France)	2016
Invited Young Scientist at the Lindau Nobel Laureate Meeting	2016
Diplôme de l'ENS Lyon, awarded for my work at the French Embassy in India	2014
Élève de l'ENS Lyon (~30 positions/year in Physics)	2009-2014

TEACHING EXPERIENCE

Assistant in Instruction for Part III and Part II at Cambridge	Since September 2022
Advanced Cosmology Part III (Prof. Blake Sherwin)	
Field theory in cosmology Part III (Prof. Enrico Pajer)	
General Relativity Part II (Prof. Aron Wall)	
Modern Cosmology - Columbia Science Honors Program	Since September 2021
New York, USA	
Saturday morning program specifically designed for selected high school students	
Teaching the full course (2h weekly)	
Invited Lecturer at the Bard Summer School On Quantum Gravity	June 2019
Bard College, Annandale-On-Hudson, NY, USA	
Lecture and Computing Lab on CMB phenomenology (~6h)	
Assistant in Instruction at Université Grenoble Alpes	2015-2017
Grenoble, France	
- Numerical Methods in Physics (Lecture and Computing Lab ~40h)	
- Special Relativity (Exercise Classes ~20h)	
- Nuclear Physics (Lab and Exercise Classes ~40h)	
- Data Analysis (Computing Lab ~20h)	

SEMINARS & CONFERENCE PRESENTATIONS

Below are the main topics I have covered in my talks and the list of places I visited.

Cosmological Constraints with the thermal and kinetic Sunyaev Zeldovich effects Talks given at Kyoto TITP (invited), Yale, Princeton, Stony Brook, NYU/CCA, Oxford (invited), Grenoble (invited), Geneva, Munich, Marcel Grossmann, Moriond, MPA, IAS Paris, Sesto, Aspen in 2017-2021.

CMB Spectral Distortions from Photon Injection Processes

Talks given at Marcel Grossmann Meetings, Barcelona, CCA, Cambridge in 2018-2021.

Cosmological Perturbations in Dark Energy and Modified Gravity

Talks given at Radboud University, ENS Lyon, Marcel Grossmann, Geneva, Manchester, in 2014-2017.

Phenomenology of Loop Quantum Cosmology

Talks given at Perimeter Institute, Penn State, LSU, Erlangen, CPT Marseille, Krakow, in 2013-2017.

SERVICES TO THE PROFESSION & OUTREACH

Organizer of Aspen workshop on cluster cosmology (Summer 2023).
Referee for *Physical Review*, *Reviews of Modern Physics* and *Classical and Quantum Gravity*.
Organizer of the cosmology journal club at DAMTP (since 2023).
Organizer of the theory seminars at Columbia (2021-22).
Organizer of the weekly Journal Club at JBCA, Manchester (2018-19).
Organizer of the weekly Student Seminars at Université Grenoble Alpes (2015-17).
Outreach Talks in schools, community centers and at private events.

SKILLS

Languages	French (Native); English (Fluent) Spanish (Conversational); Italian, Romanian, Hindi (Basics)
Coding	C/C++, Python, Tensorflow, Jupyter, Mathematica, Git, Latex Fortran, HTML
Astrophysics Software	CLASS, Cobaya, MontePython, CCL, SZFAST, CAMB, CosmoMC

COMPUTING PROJECTS

Main Author

- CLASS_SZ ([link](#)): Full-fledged parallelized cosmological inference code for CMB x LSS analyses, accelerated with neural nets.
- CLASS_EOS_FR: Cosmological perturbations in Horndeski theory
- CLASS_LQC: Primordial power spectrum and non-gaussianity in loop quantum cosmology

Co-Author

- CosmoTherm: CMB Spectral Distortions (lead: Jens Chluba, *unreleased*)
- BremsstrahlungPKG: Gaunt Factors in Astrophysics (lead: Jens Chluba, *unreleased*)
- EOS_CLASS: Cosmological Perturbations in Horndeski Models (lead: Francesco Pace)