LUCAS LATRILLE

PhD student

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PROFILE

Second-year PhD student at the French Alternative Energies and Atomic Energy Commission (CEA), working at the Center for Intense Lasers and Applications (CELIA) within the Interaction, Inertial Confinement Fusion and Astrophysics (IFCIA) research group and enrolled in the Doctoral School of Physical and Engineering Sciences (SPI) at the University of Bordeaux, in the field of Astrophysics, Plasmas, and Nuclear Physics.

RESEARCH EXPERIENCE

PhD Thesis — **CEA - CELIA - University of Bordeaux, France - 11/2024 to today**
Study of low-frequency radiation produced by particle acceleration at ultra-high laser intensity in relativistic plasmas, under the direction of Luc Bergé and Emmanuel D'Humières

Master 2 Internship — **Marseille Particle Physics Centre, France - 04/24 to 08/24**
Cosmological tests of Dark energy and General Relativity with position and velocity surveys of galaxies in the Local Universe, under the direction of Julián Bautista

Master 1 Internship — **Marseille Particle Physics Centre, France - 05/23 to 08/23**
Detection of Baryon Acoustic Oscillations signal in hydrodynamic simulation of Lyman-α forest, under the direction of Julián Bautista, Corentin Ravoux and Tyann Dumerchat

Bachelor Internship — **Laboratory of Astrophysics of Bordeaux, France - 05/22 to 07/22**
Dynamics of molecular clouds in M33 galaxy, under the direction of Jonathan Braine

EDUCATION

2024 **Master of Science and Technology in Fundamental Physics and Applications**
Nuclei, Particles and Universe Research Program, specialization in Astrophysics
University of Bordeaux, Talence, France - with honours

2022 **Bachelor of Science and Technology in Physics**
University of Bordeaux, Talence, France

2016 **Scientific Baccalaureate**
Specialization in Life and Earth Sciences, European English Section
Jean Moulin High School, Langon, France - with high honours

RESEARCH SKILLS

Theoretical physics Electromagnetism, Electrodynamics, Plasma physics, Astrophysics, Cosmology

Computational physics Particle-In-Cell simulation, Data analysis, Statistical inference, Scientific modeling, Python

LANGUAGES

French Fluent

English CEFR C1+

PUBLICATIONS

The ACCEL^2 project: simulating Lyman-α forest in large-volume hydrodynamical simulations

Solène Chabanier , Corentin Ravoux , Lucas Latrille , Jean Sexton , Éric Armengaud , Julian Bautista , Tyann Dumerchat, Zarija Lukić - Monthly Notices of the Royal Astronomical Society, Volume 534, Issue 3, November 2024, Pages 2674–2693, https://doi.org/10.1093/mnras/stae2255

POSTER PRESENTATIONS

Antenna-like and transition radiation in terahertz field emissions by relativistic laser-wire interactions
The Extreme Light Infrastructure Summer School 2025, Dolní Břežany, Czech Republic - 27/08/25

ORAL PRESENTATIONS

Analytical and numerical study of terahertz emissions in relativistic laser-wire interactions
Journée 2025 du Thrust 1 du GPR LIGHT, Centre Lasers Intenses et Applications, Talence - 26/11/25

Étude des émissions THz dans les interactions laser-fil relativistes
Réunion annuelle CEA-DAM/CELIA, Centre Lasers Intenses et Applications, Talence - 09/01/26

ATTENDED CONFERENCES

Dark Energy Spectroscopic Instrument Collaboration meeting - 08/07 to 12/07/24
Faculty of Law and Political Science, Aix-Marseille University, France

Smilei 5th user & training workshop - 19/03/25 to 21/03/25
School of Aeronautical and Space Engineering, Technical University of Madrid, Spain

The Extreme Light Infrastructure Summer School 2025 - 25/08/25 to 29/08/25
The Extreme Light infrastructure ERIC, ELI Beamlines Facility, Dolní Břežany, Czech Republic