

Loth Damagui CHABI

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ABOUT ME

I am a second year PhD student under **Philippe SOUPLET** at "Laboratoire d'Analyse Géométrie et Applications" (**LAGA**), in "Université Sorbonne Paris Nord" (**USPN**) on the asymptotic blow-up behavior and Liouville-type properties for nonlinear parabolic equations (see [project](#) for more details).

RESEARCH AREAS

Qualitative analysis of partial differential equations (Nonlinear Heat and Hamilton - Jacobi equations), Functional analysis.

EDUCATION

PhD project in Mathematic 2023 - 2026

Laboratoire d'Analyse Géométrie et Applications (**LAGA** - **USPN**)

Master of Mathematics Research (M2) 2022 - 2023

Université Sorbonne Paris Nord

Masters of Fundamental Mathematics and Applications (M1 - M2) 2020 - 2022

Institut de Mathématiques et de Science Physique (**IMSP**), **Dangbo - Bénin**

Undergraduate at IMSP: 2017 - 2020

- **1st and 2nd years:** "Classes Préparatoires Scientifiques et Technologiques **MPSI-PCSI**": October 2017 - June 2019
- **3rd year:** "Licence spéciale des classes préparatoires", **option** mathematics: September 2019 - August 2020

RESEARCH PROJECTS

Research internship M2 - USNP (May & June 2023):

"Non-linear Dirac equation for nucleons" under **Simona ROTA NODARI** (Université Côte d'Azur)

Research internship M2 - IMSP (June - August 2022):

"Study of the linearized Ginzburg-Landau operator" under **Rémy RODIAC** (Université Paris - Saclay)

Short research projet L3 - IMSP (July 2020):

"Measure of non-compactness and its applications" under Guy DEGLA (IMSP - Bénin)

PRESENTATIONS

Conference talks

- ✓ **Non-linear elliptic PDE in Hauts-de-France - fourth edition** (without talk), Calais - France (June 16 - 19, 2025)
- ✓ **Journées EDP 2025** (without talk), Centre Paul Langevin - Aussois - France (June 2 - 6, 2025)
- ✓ **Mostly Maximum Principle**, PUC - Rio de Janeiro (June 24 - 28, 2024)
- ✓ **Modern Methods in Nonlinear Elliptic and Parabolic PDE**, ICMS - Plovdiv (May 27 - 31, 2024)
- ✓ **Euro-Japanese Conference on Nonlinear Diffusion** (without talk), ICMAT - Madrid (October 16 - 20, 2023)

Class presentations

- ✓ **PhD Students Seminar & Others.** CY Cergy Paris Université (France) (April 29, 2025)
- ✓ PhD Seminar (LAGA), USPN - Villetaneuse (February 15 & May 23, 2024; April 17, 2025)

PUBLICATIONS

Journal Articles

- ✓ Refined blow-up behavior for reaction-diffusion equations with non-scale invariant exponential nonlinearities, **J. Dyn. Differ. Eq. (2025)**. [ArXiv:2502.06426](#)
- ✓ Asymptotic blow-up behavior for the semi-linear heat equation with non scale invariant nonlinearity, **Journal of Differential Equations (2025)**, [arXiv:2409.12660](#).
- ✓ Refined behavior and structural universality of the blow-up profile for the semi-linear heat equation with non scale invariant nonlinearity (with Philippe Souplet), **Math. Annalen (2025)**, [arXiv:2404.11863](#).

Preprint

- ✓ Classification of entire and ancient solutions of the diffusive Hamilton-Jacobi equation (with Philippe Souplet), [arXiv:2507.12214](#).
- ✓ Optimal Hamilton-type gradient estimates for the heat equation on noncompact manifolds (with Philippe Souplet), [arXiv:2507.12190](#).

TEACHING (EXERCISE SESSIONS)

2025 - 2026

Semester 1

- "Analysis 3: Numerical series and generalized integrals" (2nd year undergraduate, Mathematics and Computer Science)
- "Algebra 1: Introduction to mathematical structures" (1st year undergraduate, Mathematics and Computer Science)

2024 - 2025

Semester 1

- "Analysis 3: Numerical series and generalized integrals" (2nd year undergraduate, Mathematics and Computer Science)

Semester 2

- "Algebra 1: Introduction to mathematical structures" (1st year undergraduate, Mathematics and Computer Science (PAM track))

2023 - 2024

Semester 1

- "Analysis 3: Numerical series and generalized integrals" (2nd year undergraduate, Computer Science)
- "Analysis 1: Numerical sequences and usual functions" (1st year undergraduate, Mathematics)

Semester 2

- "Algebra 1: Introduction to mathematical structures" (1st year undergraduate, Mathematics and Computer Science (PAM track))

SCHOLARSHIPS & FUNDING

- September 2023 - August 2026: PhD project at LAGA-USPN
- September 2022 - August 2023: **PGSM** scholarships for M2 Mathematics at USPN
- September 2020 - August 2022: **CEA-SMIA** Scholarships for the master Mathematics at IMSP
- September 2017 - August 2020: "Bourse d'excellence du gouvernement Béninois" for Undergraduate at IMSP

AWARDS AND DISTINCTIONS

- Prize – **Hubi & Vinciane** Summer School 2017 (Tchaourou, Benin) Awarded during the project "Bananas in Every Family", focused on sustainable agriculture and community impact.
- Top Student – "**Jour des premiers**" in the commune of Tchaourou (BAC 2017):
 - Best Score in Mathematics
 - Best Score in Physics–Chemistry–Technology (PCT)
 - 1st Overall Ranking in the Commune

OTHER

- Participation in the Master's Mathematics program improvement council – USPN (2025).
- Private Mathematics Tutor – **COMPLETUDE** (09/2023 - 01/2024).