

Loth Damagui CHABI

📍 Paris, France ✉ chabi@math.univ-paris13.fr 📞 +33605877032 Hal webpage

ABOUT ME

I am a third 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, parabolic-elliptic Keller-Segel system), Functional analysis.

PUBLICATIONS

Preprints

7. Local existence and blow-up behavior for the diffusive Hamilton-Jacobi equation in a half-space with unbounded initial data, [arXiv:2606.25624](#).
6. Classification of entire and ancient solutions of the diffusive Hamilton-Jacobi equation (with Philippe Souplet), [arXiv:2507.12214](#).
5. Optimal Hamilton-type gradient estimates for the heat equation on noncompact manifolds (with Philippe Souplet), [arXiv:2507.12190](#).

Journal Articles

4. Sharp macroscopic blow-up behavior for the parabolic-elliptic Keller-Segel system in dimensions $n \geq 3$ (with Philippe Souplet), to appear in Archive Rational Mech. Anal. [arXiv:2601.14469](#).
3. Refined blow-up behavior for reaction-diffusion equations with non-scale invariant exponential nonlinearities, *J. Dyn. Differ. Equ.* (2025). [ArXiv:2502.06426](#)
2. Asymptotic blow-up behavior for the semi-linear heat equation with non scale invariant nonlinearity, *J. Differ. Equ.* 435 (2025), 113303. [arXiv:2409.12660](#).
1. 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. Ann.* 391 (2025), 4509–4554. [arXiv:2404.11863](#).

PROFESSIONAL EXPERIENCES & OTHERS

- 09/2023-: Teaching assistant (exercise sessions) at USPN-Department of mathematics (villetaneuse).
- 2025: Reviewer for the [Journal of Differential Equations](#) and the [Journal of Evolution Equations](#).
- [LAGA-USPN 2025-2026 PhD students seminar](#): co-organiser with [Nicolas Guès](#) and [Lucas Lagarde](#).
- Participation in the Master's Mathematics program improvement council – USPN (2025).
- Private Mathematics Tutor – [COMPLETUE](#) (09/2023 - 01/2024).

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)

CONFERENCES AND TALKS

13. **EYAWKAKSAD: Everything You Always Wanted to Know About Keller-Segel and Aggregation-Diffusion**(without talk), Lyon (France), April 23 & 24 2026.
12. **SCJC-MA 2026: Congrès des Jeunes Chercheur.e.s en Mathématiques Appliquées**, Champs-sur-Marne (France), March 2-4, 2026.
11. **Séminaire MAC-IMT**: Toulouse (France), January 27, 2026.
10. **ReaDiNet 2025: International Conference on Recent Topics in Reaction-Diffusion Systems and Their Applications** (Poster presentation): Hokkaido University Sapporo - Japan (20th - 24th, October 2025)
9. **Non-linear elliptic PDE in Hauts-de-France - fourth edition** (without talk): Calais - France (16-19, June 2025)
8. **Journées EDP 2025** (without talk): Centre Paul Langevin-Aussois - France (June 2-6, 2025)
7. **PhD Students Seminar & Others**. CY Cergy Paris Université (France) (April 29, 2025)
6. **Mostly Maximum Principle**: PUC - Rio de Janeiro (24-28, June 2024)
5. **PhD Seminar (LAGA), USPN - Villetaneuse** (France), April 17, 2025
4. **Modern Methods in Nonlinear Elliptic and Parabolic PDE**: ICMS - Plovdiv (27-31, May 2024)
3. **PhD Seminar (LAGA), USPN - Villetaneuse** (France), May 23, 2024
2. **PhD Seminar (LAGA), USPN - Villetaneuse** (France), February 15, 2024
1. **Euro-Japanese Conference on Nonlinear Diffusion** (without talk), ICMAT - Madrid (16-20, October 2023)

TEACHING (EXERCISE SESSIONS)

2025 - 2026

Semester 1

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

2024 - 2025

Semester 1

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

Semester 2

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

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)

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 & 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