Loth Damagui CHABI

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ABOUT ME

I am a postdoctoral Researcher at the "Laboratoire d'Analyse Géométrie et Modelisation" (AGM). My current research is part of the ERC Starting Grant project FloWAS and an ANR Chaire Professeur Junior, led by Charles COLLOT. Previously, I completed my PhD under Philippe SOUPLET at the "Laboratoire d'Analyse Géométrie et Applications" (LAGA), in "Université Sorbonne Paris Nord" (USPN).

RESEARCH AREAS

Qualitative analysis of partial differential equations (Nonlinear Heat and Hamilton-Jacobi equations, parabolic-elliptic Keller-Segel system), Functional analysis.

PUBLICATIONS

Preprints

8. Refined blow-up behavior for semilinear heat equations with arbitrarily fast growing nonlinearities, arXiv:2610.20013.
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), Archive Rational Mech. Anal. (2026) 250:86, 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

- 09/2023–08/2026: 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 – COMPLETUDE (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": September 2017– August 2019
- 3rd year: "Licence spéciale des classes préparatoires", **option** mathematics: September 2019- August 2020

RESEARCH PROJECTS

PhD project LAGA-USPN (September 2023 – August 2026):
"Blow-up behavior and Liouville-type properties for nonlinear parabolic equations" under Philippe SOUPLET.
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

- October 2026–August 2028: The ERC Starting Grant project FloWAS and an ANR Chaire Professeur Junior, led by Charles Collot at AGM-CY Cergy Paris Pontoise.
- 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 gourvernement 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