

Pauline Chassonnery

Curriculum Vitæ

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🌐 [personal webpage](#)

Academic Background

- Dec 2023 **PhD in Applied Mathematics**, *Paul Sabatier University*, Toulouse, France
- July 2020 **Master's degree in Mathematics of Modelling, major Mathematics applied to Biological and Medical Sciences**, *Sorbonne University*, Paris, France
- July 2018 **Master's degree in Mathematics Secondary-school and University Teaching**, *École Normale Supérieure de Cachan*, France
- 2012 – 2015 **CPGE Physics and Chemistry**, *Aristide Briand High School*, Évreux, France

Research Experiences

PhD Thesis (September 2020 – December 2023)

- Title **Mathematical 3D modelling of connective tissues architecture emergence.**
- Supervisors Louis CASTEILLA and Diane PEURICHARD.
- Institutes Restore Institute, University Toulouse 3 – Paul Sabatier & LJLL, Sorbonne University (France).

Master 2 internship (April – July 2020)

- Title **Mathematical 3D modelling of adipose tissue morphogenesis.**
- Supervisor Diane PEURICHARD.
- Institute Laboratoire Jacques-Louis Lions, Sorbonne University (France).

Predocctoral year of research abroad (October 2018 – June 2019)

- Title **Dynamical, multi-body interaction in a dense stellar system : formation of a super-massive black-hole.**
- Supervisor Roberto CAPUZZO-DOLCETTA.
- Institute Astrophysics Department, University of Roma La Sapienza (Italy).

Master 1 internship (April – July 2017)

- Title **Integrating primitive tumors's shape to cancer modelization by a level-set approach.**
- Supervisors Annabelle COLLIN and Olivier SAUT.
- Institute Inria team MONC & Bordeaux Institute of Mathematics (France).

Bachelor internship (spring 2016)

- Title **An interactive internet solver for the Riemann problem in digital fluid dynamic.**
- Supervisors Matthieu ANCELLIN and Jean-Michel GHIDAGLIA.
- Institute Center for Mathematical studies and their Applications, ENS Cachan (France).

Teaching Experience

- 2020 – 2022 **Numerical series and Function series**, *Bachelor 2 of Mathematics*, Sorbonne University, Paris, France.
Teaching assistant (tutorial/exercises, exam correction and feedback), 112 hours total in french.
- 2020 – 2022 **Numerical analysis**, *Bachelor 3 of Mathematics*, Sorbonne University, Paris, France.
Teaching assistant (practical work with Python), 84 hours total in french.

Professional formations

- Aug 2021 Virtual Summer school “Kinetic and fluid equations for collective dynamics”, *France-Korea International Research Laboratory in Mathematics*, online.
- 2021 Organisation of the CARE graduate school workshop “Regeneration and Senescence : From Biological Mechanisms to Numerical Tools”, *IUCT-Oncopole*, Toulouse, France.

Publications

- [1] Pauline Chassonnery and Roberto Capuzzo-Dolcetta. “Dynamics of a superdense cluster of black holes and the formation of the Galactic supermassive black hole”. *Monthly Notices of the Royal Astronomical Society*, 504(3):3909–3921, Apr 2021. doi:[10.1093/mnras/stab1016](https://doi.org/10.1093/mnras/stab1016).
- [2] Pauline Chassonnery, Roberto Capuzzo-Dolcetta and Seppo Mikkola. “ARWV Code User Manual”, 2019. [arXiv:1910.05202](https://arxiv.org/abs/1910.05202).
- [3] Pauline Chassonnery, Jenny Paupert, Anne Lorisgnol, Childéric Sévérac, Marielle Ousset, Pierre Degond, Louis Casteilla and Diane Peurichard. “Fiber crosslinking drives the emergence of order in a three-dimensional dynamical network model”. *Royal Society Open Science*, 11:231456, Jan 2024. doi:[10.1098/rsos.231456](https://doi.org/10.1098/rsos.231456).
- [4] Pauline Chassonnery, Diane Peurichard and Sinan Haliyo. “3D visualisation and segmentation tools for systems of spherical and rod-like objects”, (in preparation).
- [5] Pauline Chassonnery, Jenny Paupert, Anne Lorisgnol, Childéric Sévérac, Matthieu Vigneau, Laetitia Pieruccioni, Marielle Ousset, Pierre Degond, Louis Casteilla and Diane Peurichard. “Morphogenesis of adult adipose tissues emerges from simple local mechanical interactions”, (in preparation).

Oral Communications and Posters

- Jan 2024 CBI-IMT workshop “Modeling of life in Toulouse: from the atom to the animal” (flash talk)
- Jan 2023 CARE graduate school workshop “Numerical and technical tools to better investigate metabolism, inflammation and cancer” (oral communication)
- Aug-Sep 2022 *Mathematical Biology on the Mediterranean Conference, 3rd edition* (oral communication)
- June 2022 Restore Institute Scientific day (poster)

Languages

- French Native
- English Fluent, TOEFL certification with a mark of 640/677

Computer Skills

- Writing Proficient with \LaTeX .
- Programming Proficient with Python, Fortran and Matlab. Basic knowledge of $C++$.
- OS Proficient on Mac and Linux. Can work on Windows.