

SIMONE NATI POLTRI — *Curriculum Vitæ*

🏢 Laboratoire J.A. Dieudonné (LJAD)
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🌐 <https://simonenatipoltri.github.io>



RESEARCH EXPERIENCE

Université Côte d'Azur, Nice, France. January 2025 - present
Post-Doc : Poisson-Nernst-Planck coupling, applications to the neuron membrane.
Supervisors : C. Guerrier, S. Krell.

Inria, MONC team, Bordeaux, France. October 2021 - December 2024
PhD : Mathematical modeling of cardiac tissue response after Pulsed Field Ablation. [Link](#)
Supervisors : A. Collin, C. Poignard.

Inria, MONC team, Bordeaux, France. May 2021 - August 2021
Internship : Physical and mathematical modeling of membrane electropermeabilisation.
Supervisor : C. Poignard.

Politecnico di Milano, Milan, Italy. November 2019 - April 2020
Master thesis : A high-order discontinuous Galerkin approach to the poro-elasto-acoustic problem.
Supervisors : P. F. Antonietti, I. Mazziari.

Politecnico di Milano, Milan, Italy. December 2017
Bachelor thesis : Numerical implementation of a linear elasticity problem.
Supervisor : E. Miglio.

EDUCATION

Politecnico di Milano, Milan, Italy. 2017 - 2019
Master of Science in Mathematical Engineering, Computational Science and Engineering.

Politecnico di Milano, Milan, Italy. 2014 - 2017
Bachelor of Engineering, Mathematical Engineering.

TEACHING EXPERIENCE

ENSMAC-Bordeaux INP, Talence, France. 2023 - 2024
Practical Python programming for Analysis and Numerical Methods, 12h, L3.

ENSEIRB-MATMECA, Talence, France. 2023 - 2024
Practical Fortran 90 programming for scientific computing, 44h, L3.

ENSEIRB-MATMECA, Talence, France. 2022 - 2023
Practical Fortran 90 programming for scientific computing, 44h, L3.

ACADEMIC ACTIVITIES

ENSEIRB-MATMECA and Institut de Mathématiques de Bordeaux, Talence, France. December, 2022
Student-engineer mentoring.

CONTRIBUTIONS

Publications

- Collin, A., Nati Poltri, S., Poignard, C. (2025). Asymptotic Analysis of the Static Bidomain Model for Pulsed Field Cardiac Ablation. *Mathematical Methods in the Applied Sciences*. [Link](#)
- Nati Poltri, S., Caluori, G., Jaïs, P., Collin, A., Poignard, C. (2023). Electrophysiology modeling after catheter ablations for atrial fibrillation. In *International Conference on Functional Imaging and Modeling of the Heart* (pp. 184-193). Cham :

Springer Nature Switzerland.[Link](#)

- Antonietti, P. F., Botti, M., Mazzieri, I., Nati Poltri, S. (2022). A high-order discontinuous Galerkin method for the poro-elasto-acoustic problem on polygonal and polyhedral grids. SIAM Journal on Scientific Computing, 44(1), B1-B28. [Link](#).

Codes

- Numerical implementation of the electrocardiology modeling after catheter ablations for atrial fibrillation <https://git-lab.inria.fr/snatipol/af-pfa-rfa>.

TALKS AND RESEARCH TRAVELS

- 2025, Montréal, Canada. Centre de Recherches Mathématiques (CRM), Université de Montréal. Research visit (one month).
- 2025, Paris, France. DTE & AICOMAS 2025. Presentation.
- 2024, Lille, France. Applied Analysis and Modeling : a conference in honor of Olivier Goubet. Presentation.
- 2024, Rome, Italy. 5th world congress on Electroporation and Pulsed Electric Fields in Biology, Medicine, and Food & Environmental Technologies. Presentation.
- 2024, Le Bois-Plage-en-Ré, Ile de Ré. CANUM 2024. Presentation.
- 2024, Besançon. Journées Numériques de Besançon 2024. Presentation.
- 2023, Marne-la-Vallée. Journées Math Bio Santé 2023. Presentation.
- 2023, Lyon. The 12th International Conference on Functional Imaging and Modeling of the Heart. Poster.
- 2022, Copenhagen. 4th World Congress on Electroporation and Pulsed Electric Fields in Biology, Medicine and Food & Environmental Technologies. Poster.

SKILLS

Languages

- ▶ **Italian** native speaker
- ▶ **French** fluent
- ▶ **English** fluent
- ▶ **Spanish** basic knowledge

IT

- ▶ **Languages** Python, MATLAB, C/C++, Fortran, R
- ▶ **PDE solver** : FreeFEM++