

# Raphaël Gastaldello

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## WORK EXPERIENCE

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### PhD

Start 12/2023

*Inria (MATERIALS team)/Cermics*

*Champ-sur-Marne, France*

Title : Efficient numerical simulation of non-equilibrium systems

CNRS-funded PhD from a collaborative project between CERMICS and Imperial College London

- Molecular dynamics, Stochastic differential equations, Monte Carlo methods, Numerical analysis
- Numerical simulation (Julia)

Supervisor: Gabriel Stoltz, Urbain Vaes

### Research internship (end of study)

3/2023 – 7/2023

*Inria (MATERIALS team)/Cermics*

*Champ-sur-Marne, France*

Title : Efficient computation of transport coefficients using the Green–Kubo formula

- Molecular dynamics, Stochastic differential equations, Monte Carlo methods, Numerical analysis
- Numerical simulation (Julia)

Supervisor: Urbain Vaes

### Research internship

6/2022 – 8/2022

*Institut Elie Cartan de Lorraine*

*Nancy, France*

Title : On the optimization of a shape functional area-perimeter-moment of inertia in the plane

- Calculus of variations, Blaschke-Santaló diagram, shape optimization
- Numerical simulation (Matlab)

Supervisor: Antoine Henrot

## EDUCATION

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### Sorbonne Université

Paris, France

*Master's degree in mathematics*

*2022 - 2023*

- Computational statistic physics, PDEs (evolution, stochastic), Optimal transport, Functional analysis, Numerical analysis, Probabilistic numerical methods

### Ecole Nationale Supérieur des Mines de Nancy

Nancy, France

*Master's degree in mathematical engineering*

*2020 - 2023*

- Probabilities, PDEs, Numerical analysis, Functional analysis, Quantum physics, Statistical physics, Programming (Python, Matlab)

## PUBLICATIONS

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**Gastaldello, R.**, Henrot, A., and Lucardesi, I. (2023). *About the Blaschke-Santaló diagram of area, perimeter and moment of inertia*. arXiv preprint arXiv:2307.11658.