

# Jordi Manyer Fuertes

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## Education

- 2022-Now **PhD in Computational Mathematics**, *Monash University*, Melbourne
- 2019-2020 **Master in Advanced Mathematics and Mathematical Engineering (MAMME)**, with highest honors, *UPC*, Barcelona
- 2014-2019 **Degree in Mathematics**, *CFIS program - UPC*, Barcelona
- 2014-2019 **Degree in Physics Engineering**, *CFIS program - UPC*, Barcelona
- 1998-2014 **French S Baccalauréat and Spanish Scientific Bachillerato diplomas with highest honors**, *Lycée Français de Barcelone*, Barcelona

## Experience

- 2022-Now **Teaching assistant**, *Monash University*, Melbourne (Australia)
- 2019-2022 **Researcher at BSC's Nuclear Fusion group, led by Dr. Mervi Mantsinen**, *Barcelona Supercomputing Center (PRACE)*, Barcelona (Spain)  
The group works closely towards the objectives of EUROfusion, in collaboration with ITER, International Tokamak Physics Activity, and CIEMAT, and has access to world-class HPC resources like BSC's inhouse MareNostrum (Spain) and Helios (Japan).
- 2020-2022 **Teaching assistant**, *Universitat Politècnica de Catalunya*, Barcelona (Spain)
- 2019-2020 **Research internship at UPC's LaCàn (Mathematical and Computational Modeling) research group, led by Dr. Irene Arias, as part of my Master Thesis**, *Universitat Politècnica de Catalunya (UPC)*, Barcelona (Spain)  
The group develops mathematical methods for different physical problems in engineering. More precisely, my contribution is in the development of metamaterials to find replacement for lead-based piezoelectric components.
- 2018-2019 **Research internship at Georgia Tech's Numerical Astrophysics group, led by Prof. Deirdre Shoemaker & Prof. Pablo Laguna, as part of my Bachelor Thesis**, *Center for Relativistic Astrophysics, School of Physics, Georgia Institute of Technology*, Atlanta (USA)  
The group works closely towards the objectives of LIGO, and produces numerical models for the detection of gravitational waves produced by black hole binary collisions and other similar events.
- 2017 **Research internship: Implementation of Game Theory strategies to Control Theory, for decentralized stochastic systems.**, *Institut de Robòtica Industrial (CSIC, UPC)*, Barcelona (Spain)

## Publications and talks

### Articles

Jordi Manyer, Alberto F. Martín, and Santiago Badia. Gridapsolvers.jl: Scalable multiphysics finite element solvers in julia. *Journal of Open Source Software*, 2024.

Zachary J. Wegert, Jordi Manyer, Connor Mallon, Santiago Badia, and Vivien J. Challis. Gridaptopopt.jl: a scalable julia toolbox for level set-based topology optimisation. *Struct Multidisc Optim* 68, 22, 2025.

Zachary J. Wegert, Jordi Manyer, Connor Mallon, Santiago Badia, and Vivien J. Challis. Level-set topology optimisation with unfitted finite elements and automatic shape differentiation. Submitted, 2025.

### Presentations

Jordi Manyer and Santiago Badia. Towards scalable solvers for the inductionless mhd equations at high hartmann numbers. In *CTAC2024*, Melbourne, Australia, November 2024. Regular presentation.

### Workshops

Santiago Badia, Jordi Manyer, and Alberto F. Martín. Gridap workshop. Sponsored by NCI and held at ANU's campus in Canberra, Australia, 2023. Material available at <https://github.com/gridap/GridapWorkshopNCI2023>.

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## Further Merits

### Grants and Awards

2022 **Monash Graduate Scholarship**

Awarded by Monash university.

2020 **Premi Càtedra Mir-Puig**

Awarded by Universitat Politècnica de Catalunya (UPC) for best academic record in the 2019-2020 class of the Master in Advanced Mathematics and Mathematical Engineering (MAMME).

2014-2019 **CFIS-UPC Scholarship**

Awarded to a maximum of 40 students in Spain per year. The scholarship covers the academic costs for coursing two bachelor degrees simultaneously at Universitat Politècnica de Catalunya.

2014 **Matrícula de Honor de Bachillerato**

Awarded to the top 5% of high-school students in Spain.

### Outreach and voluntary work

2018-ongoing **Volunteer at Casal dels Infants, Barcelona, Spain**

El Casal dels Infants is a Non-Profit Organisation acting on Barcelona and it's surroundings. It targets children, teens and young adults in danger of social exclusion (poverty, parental issues,...) and helps them get the life opportunities every child should have.

2019 **Volunteer Instructor at Visions STEAM Anella, UPC, Barcelona(Spain)**

Visions STEAM Anella is an annual project organised by UPC and other institutions for students of ages 14-15 all around Catalonia (Spain), to give them an opportunity to discover physics in a completely different way: experiments are designed by UPC professors and carried out by the students at the Olympic Montjuïc Stadium (Barcelona), near Barcelona.

2018 **Instructor at 'Les matemàtiques de problemes reals de la física i l'enginyeria',  
*Facultat de Matemàtiques i Estadística (FME), UPC***

Summer course for high-school students (ages 17-18) centered around numerical mathematics and their application to solve physics problems.

2017 , 2018 **Volunteer Instructor at Fisidabo, UPC, Barcelona(Spain)**

Fisidabo is an annual project organised by UPC and other institutions for students of ages 14-18 all around Catalonia (Spain), to give them an opportunity to discover physics in a completely different way: experiments are designed by UPC professors and carried out by the students at Tibidabo theme park, near Barcelona.