Umberto Zerbinati
Curriculum Vitae

Oriel College
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Academic history

2022–present	**DPhil in Mathematics, University of Oxford**, *Oxford, United Kingdom*. **Supervisor:** Patrick E. Farrell
2020–2022	**Master's in Applied Mathematics, KAUST**, *Thuwal, Saudi Arabia*. **Thesis Title:** A Priori Error Analysis For A Penalty Finite Element Method, **Supervisor:** Daniele Boffi, GPA: 3.74/4.
2016–2020	**Bachelor Degree in Mathematics, University of Pavia**, *Pavia, Italy*. **Thesis Title:** Second Order Finite Difference Methods For The Wave Equation With Dirichlet Boundary Conditions, **Supervisor:** Andrea Moiola and Ilaria Perugia, Graduation grade: 106/110.
2016–2019	**Erasmus+ Traineeship at University of Wien**, *Vienna, Austria*.
2016–2019	**Collegio Ghislieri**, *Pavia, Italy*.
2014–2016	**Hutton Grammar School**, Preston, United Kingdom. A Level: Math, Chemistry, Biology, EPQ.

Research visit

March 2023	**University of Catania**, *Working with Giovanni Russo*, **Topic:** particle pushers for non-Hamiltonian systems.
December 2019	**University of Wien**, *Working with Anastasia Molchanova*, **Topic:** finite element discretizations for quasiconformal elasticity.

Skills

Programming Languages	Python, C++ and Julia
Coding Libraries	Firedrake, Netgen/NGSolve*, PETSc*, SLEPc and JAX
Software Tools	Paraview, Beamer, Git and Latex
Operating System	Linux

*I've contributed to this library.

Languages

Italian	Native Speaker

English	Fluent
Spanish	Good

Administrative & editorial activities

2022 **Founder and Vice-President**, *SIAM Student Chapter at KAUST*.

2022 **Reviewer**, *Computers & Mathematics with Applications*.

2018–2020 **Founder and President**, *Mathematics student association at University of Pavia*.

Published journal articles

○ PINNs and GaLS: A Priori Error Estimates for Shallow Physically Informed Neural Network Applied to Elliptic Problems by **U. Zerbinati** (2022) Accepted by MATHMOD2022 and appeared in MATHMOD2022 Proceedings, DOI: 10.1016/j.ifacol.2022.09.072.

Articles in preparation

○ Second order methods for training in scientific machine learning, by D. E. Keyes, G. Turkiyyah, S. Zampini and **U. Zerbinati**.
○ Lightening Laplace solver and the virtual element method, by M. L. Trezzi and **U. Zerbinati**.
○ A particle pusher for non-Hamiltonian systems, by G. Russo and **U. Zerbinati**.
○ On divergence free discretizations for the Stokes eigenvalue problems, by F. Bertrand, D. Boffi and **U. Zerbinati**.

Conferences

January 2023	**22nd GAMM Seminar on Microstructures**, ***Role:*** *Speaker,* ***Presentation Title:*** *Anisotropic acoustic waves in rarefied nematic liquid crystals,* ***Co-Author:*** *P. E. Farrell*, Vienna, Austria.
January 2023	**Firedrake22**, ***Role:*** *Speaker,* ***Presentation Title:*** *Netgen Meets Firedrake,* ***Co-Author:*** *P. E. Farrell and S. Zampini*, Totnes, United Kingdom.
July 2022	**MATHMOD2022**, ***Role:*** *Speaker,* ***Presentation Title:*** *PINNs and GaLS: A Priori Error Estimates for Shallow Physics Informed Neural Networks,* ***Co-Author:*** *G. Turkiyyah and S. Zampini*, Vienna, Austria.
September 2022	**2nd Young Applied Mathematicians Conference**, ***Role:*** *Organizer*, Arenzano, Italy.
September 2021	**1st Young Applied Mathematicians Conference**, ***Role:*** *Organizer*, Leuca, Italy.
July 2019	**3rd NGSolve User Meeting**, ***Role:*** *Attendee*, Vienna, Austria.