

Théophile Chaumont-Frelet

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Research interests

Partial differential equations

Numerical analysis

Finite element methods

Multiscale methods

High performance computing

Wave propagation

Geophysics

Electromagnetism

Professional history

Since 2018: **Junior researcher**
Sophia-Antipolis, France

Inria project-team Nachos

2018 - 2018: **Postdoctoral fellow**
Paris, France

CERMICS and Inria project-team Serena

Supervision: Alexandre Ern, Virginie Ehrlacher and Anthony Nouy

2016 - 2018: **Postdoctoral fellow**
Bilbao, Spain
Supervision: David Pardo

Basque Center for Applied Mathematics

2012 - 2015: **PhD student**
Rouen, France

INSA Rouen and Inria project-team Magique3D

Supervision: Hélène Barucq and Christian Gout

Education

2007 - 2012: **Engineering degree**
Applied mathematics and scientific computing

INSA Rouen

2011 - 2012: **Master's degree**
Fundamental and applied mathematics

University of Rouen

Published articles

- [1] H. Barucq, T. Chaumont-Frelet, J. Diaz, and V. Péron. “Upscaling for the Laplace problem using a discontinuous Galerkin method”. In: *J. Comput. Appl. Math.* 240 (2013), pp. 192–203.
- [2] T. Chaumont-Frelet. “On high order methods for the heterogeneous Helmholtz equation”. In: *Comput. Math. Appl.* 72 (2016), pp. 2203–2225.
- [3] H. Barucq, T. Chaumont-Frelet, and C. Gout. “Stability analysis of heterogeneous Helmholtz problems and finite element solution based on propagation media approximation”. In: *Math. Comp.* 86.307 (2017), pp. 2129–2157.
- [4] T. Chaumont-Frelet and S. Nicaise. “High-frequency behaviour of corner singularities in Helmholtz problems”. Accepted in M2AN: Math. Model. Numer. Anal. 2018.
- [5] T. Chaumont-Frelet, S. Nicaise, and D. Pardo. “Finite element approximation of electromagnetic fields using non-fitting meshes for Geophysics”. In: *SIAM J. Numer. Anal.* 56 (2018), pp. 2288–2321.
- [6] T. Chaumont-Frelet, D. Pardo, and Á. Rodríguez-Rozas. “Finite element simulations of logging-while-drilling and extra-deep azimuthal resistivity measurements using non-fitting grids”. Accepted in *Comput. Geosci.* 2018.

Submitted articles

- [7] T. Chaumont-Frelet and S. Nicaise. “Wavenumber explicit convergence analysis for finite element discretizations of general wave propagation problems”. Submitted to *IMA J. Numer. Anal.* 2017.
- [8] T. Chaumont-Frelet, D. Gallistl, S. Nicaise, and J. Tomezyk. “Wavenumber explicit convergence analysis for finite element discretizations of time-harmonic wave propagation problems with perfectly matched layers”. Submitted to *Math. Comp.* 2018.
- [9] T. Chaumont-Frelet, S. Nicaise, and J. Tomezyk. “Uniform a priori estimates for elliptic problems with impedance boundary conditions”. Submitted to *Comm. Pure Appl. Math.* 2018.

Editorial activities

Guest editor for Geosciences:

Special issue “Petroleum Engineering Applications: Borehole Simulations”

Reviewer for the journals:

Comput. Math. Appl.; *Math. Meth. Appl. Sci.*; *Geophys. J. Int.*; *Comput. Geosci.*