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** — Inria project-team Nachos
Sophia-Antipolis, France

2018 - 2018: **Postdoctoral fellow** — CERMICS and Inria project-team Serena
Paris, France
Supervision: Alexandre Ern, Virginie Ehrlacher and Anthony Nouy

2016 - 2018: **Postdoctoral fellow** — Basque Center for Applied Mathematics
Bilbao, Spain
Supervision: David Pardo

2012 - 2015: **PhD student** — INSA Rouen and Inria project-team Magique3D
Rouen, France
Supervision: Hélène Barucq and Christian Gout

Education

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

2011 - 2012: **Master's degree** — University of Rouen
Fundamental and applied mathematics

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 Helmoltz 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.