

BRETHES Gautier
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Available from January 2016



<http://www.sop.inria.fr/members/Gautier.Brethes/Gautier.Brethes.htm>

Engineer in Mathematical Modeling and Mechanics

Studies

2012-2015: Preparing a **PhD** of the University Nice Sophia-Antipolis at the **INRIA** center of Sophia-Antipolis.
2011 : Engineering degree **ENSEIRB-MATMECA**, **Mention Mathematical Modeling and Mechanics at Talence (with honors)**.
2011 : **Master of Engineering Mathematics** at university Bordeaux 1.
2009 : **Licence Science, Technology, Health, Mention Physics and Engineering** at University Bordeaux 1 (with honors).
2008 : **Licence Science, Technology, Health, Mention Mathematics** at University Bordeaux 1.
2005-2007 : **Preparatory classes for Grandes Ecoles**, **Mention Mathematics-Physics** at High School Michel Montaigne, Bordeaux.
2005 : **Scientific baccalaureate** at High School Gaston-Crampe from Aire-sur-Adour (with honors)

Thematics approached during the PhD :

Methods of solving multigrids, Full-Multigrid and preconditioned GMRES, hessian-based, goal-oriented and norm-oriented methods of mesh adaptation, a priori and a posteriori error estimations, MPI parallelisation, application to multifluid flows.

Courses taken at school ENSEIRB-MATMECA:

Fluid Mechanics, Solid Mechanics, Numerical Analysis, Functional Analysis, Partial Differential Equations, Computer languages, Structural Analysis, Signal Processing, Tools probabilistic reliability, Combustion, Numerical simulation fluid flows, Code computing Abaqus, Numerical methods in electromagnetism, Adjoint equations and optimal control of distributed parameter systems, High order schemes for fluid dynamics, Knowledge and business management, Analysis accounting and financial.

Softwares: Word, Excel, LaTeX, Maple, Matlab, Abaqus, Fluent, Paraview, Medit. *Environnements:* Linux, Windows.

Programming languages: C++, Fortran90, Matlab, Scilab, Python, Bash.

Professional experience

2012-2015: Collaboration with **LEMMA** society: participation to the development of a multigrid version for multifluid applications of the commercial software **ANANAS**.
2012: Mathematics teacher in the Departemental High School from Saint-Paul-lès-Dax and in the High School d'Albret from Dax.
2011: Internship of 6 months at **CEA**, on **Arbitrarily high order schemes for Incompressible Navier-Stokes equations**.
2010: Internship of 3 months at **GHYMAC** laboratory on **Correction of edges effects in the measurement of electrical resistivity**.
2009: Internship of ten weeks at the company **EURELEC AQUITAINE** at Mérignac.
2008: Internship of one month at the company **LE MEUBLE CHALOSSAIS** at Hagetmau.

Completed projects

2014-2015: Development of a **video of scientific popularization** about **methods of numerical simulation**.
2012-2015: Development of a demonstration platform for the adaptative multigrids in 2D and 3D, of 21688 lines, parallel (MPI) and non-parallel versions, in **C++**, at INRIA.
2011: Simulation and visualization of fluid flow in a **compressor Knudsen**, in **Fortran90**, at MATMECA.
2010: Modeling of the **acoustic vibration of nanoparticles induced by laser pulse**, in **Matlab**, at MATMECA.
2008: Modeling of the interactions prey/predator with **methods of Euler, Runge-Kutta and Crank-Nicolson**, in **Fortran90**, at MATMECA.

Participation in conferences

2015: Presentations at **PANACM conference 2015** in Buenos Aires and at **ADMOS conference 2015** in Nantes.
2013 then 2014: Participation to the INRIA stand for the **Fête de la Science**.
2014: Presentation at **ECCOMAS conference 2014** in Barcelone and INRIA seminar on: **The two ideas of the multigrid methods**.
2013: Presentation at **Young ECCOMAS conference 2013** in Bordeaux and Poster at **SMAI congress 2013** in Seignosse-le-Pennon.

Published or to publish articles

A Mesh-Adaptative Metric-Based Full-Multigrid for the Poisson problem (published) and Anisotropic Norm-Oriented Mesh Adaptation for a Poisson problem (submitted), both in a review of rank A.

Languages spoken

English : read, written, spoken, note of 800 at the TOEIC.

Spanish : read, written, spoken.

Spare-time activities

Reading, cinema.