



Ghislain Lartigue

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Personal Information

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Lab Address

CORIA
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Research Activities

- Code maintenance and development (SITCOMB, YALES2, ...),
- Numerical methods,
- Thermodynamic, statistical mechanics, complex transport phenomenas, complex chemistry,
- Turbulent combustion.

Reviewing Activities

Reviewer for Journal of Flow, Turbulence and Combustion.

Teaching Activities

- Compressible flows / INSA de Rouen (21h)
- Fluid mechanics basics / INSA de Rouen (16h)
- Finite Elements basics / INSA de Rouen (12h)

Past activities

- 2009 - present : Research Engineer at CNRS/CORIA, Rouen, France.
- 2009 - 2011 : Research Engineer at INSA/CORIA, Rouen, France.
- 2008 - 2009 : Head of Numerical Simulation Team at GDF-SUEZ Research Division, Paris, France.
- 2005 - 2007 : Research Engineer at GDF-SUEZ Research Division, Paris, France.
- 2004 : Engineer at CORYS, Grenoble, France.
- 2000-2003 : Ph.D. in Numerical Combustion at CERFACS, Toulouse, France.
- 2000 : MSc in Fluid Mechanics, Toulouse, France
- 1997-2000 : Engineer Degree at ENSEEIHT, Toulouse, France.

Awards and distinctions

- 1990 and 1992: winner of the first prize of the "Kangourou des Mathématiques", a national mathematic contest.
- 2008 : Winner of the Innovative Trophy of GDF Research Division.

Publications

Articles

- L. Guedot, G. Lartigue, V. Moureau, "Design of implicit high-order filters on unstructured grids for the identification of large-scale features in large-eddy simulation and application to a swirl burner", *Phys. of Fluids* **2015**, 27(4) <http://dx.doi.org/10.1063/1.4917280>
- F. Pecquery, V. Moureau, G. Lartigue, L. Vervisch, A. Roux, "Modelling nitrogen oxide emissions in turbulent flames with air dilution: Application to les of a non-premixed jet-flame", *Comb. and Flame* **2014**, 161(2):496-509 <http://dx.doi.org/10.1016/j.combustflame.2013.09.018>
- X. Petit, G. Ribert, P. Domingo, G. Lartigue, "Large-eddy simulation of supercritical fluid injection", *J. Supercritical Fluids* **2013**, 84:61-73 <http://dx.doi.org/10.1016/j.supflu.2013.09.011> (File:Pub Lartigue 2013 JSCF.pdf)
- F. Haloua, J.-N. Ponsard, G. Lartigue, B. Hay, C. Villermaux, E. Foulon, M. Zaréa, "Thermal behaviour modelling of a reference calorimeter for natural gas", *International Journal of Thermal Sciences*, **2012**, 55:40-47, <http://dx.doi.org/10.1016/j.ijthermalsci.2011.12.014> (File:Pub 2012 Lartigue IJTS.pdf)
- V. Moureau, G. Lartigue, Y. Sommerer, C. Angelberger, O. Colin, and T. Poinsot, "Numerical methods for unsteady compressible multi-component reacting flows on fixed and moving grids", *Journal of Computational Physics*, **2005**, 202(2):710-736, <http://dx.doi.org/10.1016/j.jcp.2004.08.003> (File:Pub 2005 Lartigue JCP.pdf)
- S. Roux, G. Lartigue, T. Poinsot, U. Meier, and C. Bérat. "Studies of mean and unsteady flow in a swirled combustor using experiments, acoustic analysis and large eddy simulations", *Combustion and Flame*, **2005**, 141:40-54, <http://dx.doi.org/10.1016/j.combustflame.2004.12.007> (File:Pub 2005 Lartigue CF.pdf)
- L. Selle, G. Lartigue, T. Poinsot, R. Koch, K.-U. Schildmacher, W. Krebs, B. Prade, P. Kaufmann, and D. Veynante, "Compressible Large-Eddy Simulation of turbulent combustion in complex geometry on unstructured meshes", *Combustion and Flame*, **2004**, 137(4):489-505 <http://dx.doi.org/10.1016/j.combustflame.2004.03.008> (File:Pub 2004 Lartigue CF.pdf)
- G. Lartigue, U. Meier, and C. Bérat, "Experimental and numerical investigation of self-excited combustion oscillations in a scaled gas turbine combustor", *Applied Thermal Engineering*, **2004**, 24(11-12):1583-1592, <http://dx.doi.org/10.1016/j.applthermaleng.2003.10.026> (File:Pub 2004 Lartigue ATE.pdf)

Submitted to peer-reviewed international journals

1. Gruselle, C., Moureau, V., Lartigue, G., Pepiot, P., D'Angelo, Y. & Ravet, F. (2014) Flame kernel expansion modeling in a stratified mixture. part 1: laminar case. *Submitted to ...*, .
2. Gruselle, C., Moureau, V., Lartigue, G., Pepiot, P., D'Angelo, Y. & Ravet, F. (2014) Flame kernel expansion modeling in a stratified mixture. part 2: turbulent case. *Submitted to ...*, .

Invited Conferences

- V. Moureau, G. Lartigue, "High performance computing for combustion modeling", *International Supercomputing Conference*, Leipzig (Germany), **2013**.
- G. Lartigue, V. Moureau, "Solveur de Poisson massivement parallèle sur maillage non structuré", *Journées CFD Equip@Meso*, Rouen (France), **2013**.

Conferences

- A. S. Charif-Rubial, E. Oseret, G. Lartigue and W. Jalby "CQA: A Code Quality Analyzer tool at binary level", *21th Annual International Conference on High Performance Computing, HiPC'14*, Goa (India), **2014**
- P. Benard, V. Moureau, Y. D'Angelo, G. Lartigue., M. Cuiif-Sjostrand, "LES / DNS modelling of mesocombustion chambers with Arrhenius complex chemistry", *SIAM 14th International Conference on Numerical Combustion*, San Antonio (USA), **2013**.
- L. Bouheraoua, G. Ribert, P. Domingo, G. Lartigue, "Large Eddy Simulation of supersonic non-reactive and reactive flows with an Immersed Boundary Method", *5th Eucass Conference*, Munich (Germany), **2013**.
- C. Gruselle, G. Lartigue, P. Pepiot, V. Moureau, Y. D'Angelo, "Numerical simulation of turbulent stratified flame propagation in a closed vessel", *Bulletin of the American Physical Society* 57, **2012**
- F. Pecquery, V. Moureau, G. Lartigue, L. Vervisch and A. Roux, "Development of a numerical model to predict emissions of nitric oxides in turbulent flames", *9th International ERCOFTAC Symposium on Engineering Turbulence Modelling and Measurements*, **2012**
- G. Ribert, D. Taïeb, X. Petit, G. Lartigue, P. Domingo, "Flow simulation under supercritical thermodynamics conditions", *4th Eucass Conference*, St-Petersburg (Russia), **2011**.
- G. Ribert, L. Vervisch, P. Domingo, G. Lodier, V. Moureau and G. Lartigue, "Advanced detailed chemistry tabulation for engine simulations: application to a rapid compression machine", *SIA International Conference*, **2010**
- G. Peureux, S. Carpentier, G. Lartigue, "NOx emissions prediction for natural gas engines with fuel quality variations", *4th European Combustion Meeting*, **2009** ([File:Pub 2009 Lartigue ECM.pdf](#))
- G. Peureux, O. Baudrand, G. Lartigue, S. Carpentier, C. Étienne, "Natural gas engines modeling: combustion and Nox emission prediction". *International Gas Research Conference*, **2008** ([File:Pub 2008 Lartigue IGRC.pdf](#))
- R. Vicquelin, G. Lartigue, B. Fiorina, O. Gicquel, "Jet Flame in a Vitiated Co-Flow", *SIAM International Conference on Numerical Combustion*, **2008**
- R. Vicquelin, B. Fiorina, O. Gicquel, G. Lartigue and T. Poinso, "Large Eddy Simulation of Mild Combustion", *ICDERS*, **2007** ([File:Pub 2007 Lartigue ICDERS.pdf](#))
- L. Selle, G. Lartigue, T. Poinso, A. Kaufmann, W. Krebs, and D. Veynante, "Large Eddy Simulation of turbulent combustion for gas turbines with reduced chemistry", *Proceedings of the CTR Summer Program*, **2002** ([File:Pub 2002 Lartigue CTR.pdf](#))
- T. Poinso, J. Schlüter, G. Lartigue, L. Selle, W. Krebs, and S. Hoffmann, "Using Large Eddy Simulations to understand combustion instabilities in gas turbines", *IUTAM Symposium on Turbulent Mixing and Combustion*, **2001** ([File:Pub 2001 Lartigue IUTAM.pdf](#))

Chapter of Book (peer reviewed)

- G. Ribert, D. Taieb, X. Petit, G. Lartigue and P. Domingo, "Simulation of supercritical flows in rocket-motor engines: application to cooling channel and injection system", *Eucass Book Series, Adv. Aerospace Sci., Prog. Propul. Phys. (4)*, Print ISBN xxx, **2012**

Chapter of Book

- L. Selle, G. Lartigue, L. Benoit, and T. Poinso, "Clean combustors for industrial gas turbines", *VKI Lecture Series 2004-03*, **2004**, ([File:Pub 2003 Lartigue VKI.pdf](#))

Other

- G. Lartigue, "Simulation des grandes échelles et instabilités de combustion", *PhD thesis*, **2004**, ([File:Pub 2004 Lartigue PhD.pdf](#))
- G. Lartigue, "Modélisation d'une flamme de propane par un schéma cinétique à une étape", *Student report STR/CFD/00/32, CERFACS*, **2000** ([File:Pub 2000 Lartigue DEA.pdf](#))

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