

Franck Ledoux — Resume

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Born April 30, 1975, French, Married, 3 children.

Researcher working on developing software for HPC numerical simulation including pre and post-processing, code framework, IO and HPC runtime. I'm director of research and CEA fellow in Numerical Simulation. I'm also associate professor in Computer Science at Université Evry, Paris-Saclay. My main research activity focuses on generating and handling meshes for numerical simulation. It can be split in three main topics: (1) Quadrilateral and hexahedral mesh generation; (2) Graph and mesh partitioning; (3) Parallel mesh adaptation (concurrent and distributed).

Work experience

Engineering and research.....

Director of Research **since January 2021**

CEA, DAM Île-de-France

Guide and drive research in mesh generation, especially hexahedral block-structure. I supervise Phd students working on polycube methods, frame field technology, reinforcement learning and parallel hybrid meshing.

Group leader **from January 2018 to september 2023**

CEA, DAM Île-de-France

Lead a team of about fifteen engineers and researchers that develop, maintain and provide user support for HPC tools and libraries that are delivered to CEA users. Topics of provided software are: CAD & meshing, scientific visualization, physics databases (equations of state, opacity, ...).

Engineer-Researcher **from Sept. 2016 to Dec. 2017**

CEA, DAM Île-de-France

Lead and animation of R&D projects: structured meshes; multi-threaded generation of 3D mixed mesh; design of a component-based architecture to build simulation applications as a static assembly of autonomous components.

Invited scientist **from Sept. 2015 to August 2016**

Lawrence Livermore National Laboratories, CA, USA

Design and parallelization of hexahedral-dominant meshes (partially funded by the French defense procurement agency, or DGA).

Project Leader **from 2009 to August 2015**

CEA, DAM Île-de-France

Leader of the Magix3D project, which is a CAD-Meshing software used at CEA, DAM for generating models and meshes used in Lagrangian and ALE simulation codes. Research activity on block-structured hexahedral meshing (collaborations with French Universities, Sandia National Laboratories, USA, and Lawrence Livermore National Laboratories, USA).

Engineer-Researcher **from march 2004 to 2010**

CEA, DAM Île-de-France

Member of a team whose the goal is to provide tools to generate and modify meshes that are used by numerical simulation codes. Research about parallel meshing and block meshing et activité de recherche en maillage structuré par blocs et parallèle (collaborations with French Universities and Sandia National Laboratories, USA).

Temporary Lecturer and Research Assistant **from jan. 2003 to feb. 2004**

Université d'Evry-Val d'Essonne

Research about algebraic specifications, geometric modelling and CAD; teaching on C, C++ and formal engineering software.

Teaching and students' supervision.....

Associate professor in Computer Science since Sept. 2016 and from Oct. 2009 to August 2015
University of Évry-Val d'Essonne, University of Paris-Saclay
I've mainly taught software engineering (scrum, designs patterns, testing, etc.), parallel and distributed programming, component and object oriented design, web services and supervised project in meshing and parallel programming. Audience is made of graduated students only.

Education

Habilitation à Diriger des Recherches en Informatique 2014
University of Poitiers, France

This French diploma is mandatory to be the main advisor of PHD's students and to become full professor in French Universities. I obtained this grade for my research contributions in the field of hexahedral meshing for numerical simulation.

Ph.D. in Computer Science from oct. 1999 to dec. 2002
University of Évry-Val-d'Essonne, France

The topic of my Ph.D. was about formally proving CAD operations like the chamfering ones. By using algebraic specifications to define operations, you can prove the well-behaviour of their implementations. My advisors were Pascale Le Gall, professor of University, and Yves Bertrand, professor of University.

Master degree in Computer Science from oct. 1998 to sept. 1999
University of Évry-Val-d'Essonne, France

Master degree in Mathematics from oct. 1997 to sept. 1998
University of Évry-Val-d'Essonne, France

Licence degree in Mathematics from oct. 1996 to sept. 1997
University of Évry-Val-d'Essonne, France

Associate degree in Mathematics and Computer Science from oct. 1994 to sept. 1996
University of Évry-Val-d'Essonne, France

12th grade in mathematics and physics from sept. 1993 to july 1994
Lycée du Parc des Loges, Évry, France

11th grade in mathematics and physics from sept. 1992 to july 1993
Lycée du Parc des Loges, Évry, France

Publications in a nutshell

12 articles in international journals, 23 in international conferences with proceedings, 14 in conferences with selection committee).

Research supervising

In connection with my research activity, I have supervised 15 Phd students (including 4 in progress), 3 Post-Doc students and about 25 students during their master's internships in mathematics or computer science.

Past PHD students.....

- Nicolas Kowalski, *Domain partitioning using frame fields : applications to quadrilateral and hexahedral meshing*, co-supervised with P. Frey (Univ Paris 6), defended in 2013.
- Sébastien Morais, *Study and and furniture of heuristics and exact and approximated algorithms for a mesh partitioning with memory constraints*, co-supervised with E. Angel (Univ Paris Saclay), defended in 2016.
- Hoby Rakotoarivelo, *Co-design of irregular kernels on manycore architectures: applicatioj to anisotropic multi-scale remeshing for fluid simulation*, co-supervised with F. Pommereau (Univ Paris Saclay), defended in 2018.
- Nicolas Le Goff, *Construction of a conformal hexahedral mesh from volume fractions: theory and applications*,

co-supervised with J.-Ch. Janodet (Univ Paris Saclay), defended in 2020.

- Simon Caldéran, *Interactive generation of block-structured hexahedral meshes*, co-supervised with G. Hutzler (Univ Paris Saclay), defended in may 2022.
- François Protais, *Polycube-dominant meshes*, co-supervised with D. Sokolov and N. Ray (Univ. de Lorraine), defended in oct. 2022.
- Sofiane Benzait, *Hybrid mesh adaptation using metric and frame fields*, co-supervised with A. Loseille (Univ. Paris-Saclay), defended in sept. 2023.
- Hubert Hirtz, *Mesh partitioning of load balancing of multi-physics simulations*, co-supervised with C. Chevalier (LIHPC, CEA) and S. Morais (LIHPC, CEA) defended in dec. 2023.
- Valentin Postat, *Multi-agent systems and reinforcement learning for hexahedral block structured meshes*, co-supervised with G. Hutzler (Univ. Paris-Saclay), defense in jan. 2024.
- Claire Roche, *Generation of hexahedral meshing for atmospheric reentry*, co-supervised with J. Breil (CEA, DAM, CESTA), defended in oct. 2024.
- Sébastien Mestrallet, *Robust hexahedral meshing using automatic machine learning*, co-advised with C. Bourcier, defended in nov. 2024.

PHD students in progress.....

- Paul Bourmaud, *Reinforcement Learning for Hex Blocking*, co-supervised with J.-Ch. Janodet (Univ. Evry Paris-Saclay), defense expected in oct. 2025.
- Isaie Muron, *Efficient meshing algorithm on manycore architectures*, co-supervised with C. Chevalier (CEA), defense expected in dec. 2027.
- Tristan Cheny, *Anisotropic block-structured mesh generation for extern aerodynamics*, co-supervised with D. Sokolov (PIXEL, LORIA, Université de Lorraine) and E. Corman (PIXEL, LORIA, CNRS), defense expected in oct. 2027.
- Arzhela Roperch, *Reinforcement Learning fo Topological Optimization of Block-Structured Meshes*, co-supervised with J.-Ch. Janodet (Univ. Evry Paris-Saclay), defense expected in nov. 2027.

Scientific recognition

CEA Fellow in the topic *Mathematics, Computer science, software and system technology* since 2017.

Invited seminars.....

I've been invited to present my work at the national (6 times) and international level (5 times) for a large scope of audiences (from research lab's teams to international conferences):

- Invited speaker at jFIG 2020, *Maillage structuré pour le calcul scientifique : Et si la solution venait de l'informatique graphique?*, Journées Française d'Informatique Graphique, LORIA, Nancy, 26 Novembre 2020
- Seminar of the IBISC laboratory, *From CAD to HPC numerical simulation: how to handle hexahedral meshing*, University of Évry-Val d'Essonne, University of Paris-Saclay, Mars 12, 2020, Évry.
- FRAMES 2019, First Workshop on Frame-based hex meshing, *Bringing frame field from research to industrial usage.*, Université Catholique de Louvain-la-Neuve, Belgium, July 1-2, 2019.
- 27th IMR Invited speaker, *Paving the Path Towards Automatic Hexahedral Mesh Generation*, Albuquerque, NM, USA, 1-5 Octobre, 2018.
- 25th IMR Advanced Track Instructor, *Introduction to Hybrid and Hex-Dominant Mesh Generation*, Washington, DC, USA, September 27-30, 2016.
- INRIA Seminar on Modelisation and Scientific computation, *Hexahedral meshing – Towards an automatic and reliable solution?*, INRIA Rocquencourt, April 7, 2015.
- SMAI intergroup day of MAIRCI, GAMNI and SIGMA about "Meshing", *Generation of hexahedral meshes for numerical simulation: towards an automatic solution?*, IHP, Paris, Novembre 25, 2014.
- Seminar of the XLIM-SIC laboratory, *Hexahedral meshing for numerical simulation*, University of Poitiers, Novembre 2013.
- Seminar of the MAS laboratory, Ecole Centrale de Paris, *Generation and modification of quadrangular and hexahedral meshes*, Novembre 15, 2012.
- Seminar at Sandia National Laboratories, *How to define a Generic Mesh Data Structure (GMDS) in the High Performance Computing Context?*, Albuquerque, NM, USA, July 21, 2011.

- Seminar of the OPAL team, IBISC laboratory, *Some issues to solve for generating and adapting quadrilateral and hexahedral meshes*, University of Évry-Val d'Essonne, February 25, 2010.
- Seminar at Sandia National Laboratories, *Generation of Hexahedral Block-Structured Meshes using Fundamental Sheets*, Albuquerque, NM, USA, July 14, 2009.

Fundings and distinctions.....

- In 2015, obtaning a DGA funding " *séjours d'études et de recherches à l'étranger (ERE)*" for working one year on parallel hex-dominant meshing at Lawrence Livermore National Laboratory (LLNL), CA, USA.
- In 2012, IMR Best technical paper award for the article entitled *A PDE based approach to multidomain partitioning and quadrilateral meshing* writtent with N. Kowalski and P. Frey (21st IMR).
- In 2009, IMR Best technical poster award for the poster entitled *Fun sheet matching : Towards automatic generation of hexahedral block-structured meshes* with N. Kowalski, M. L. Staten and S. J. Owen (18th IMR).
- In 2006, IMR Best technical poster award for the poster entitled *Towards a Tool for Hexahedral Mesh Generation using the Spatial Twist Continuum* with J.-Ch. Weill (15th IMR)

Scientific animation

Participation to research and teaching institution.....

Member of the CEA, DAM laboratory "*Informatiques et calcul Haute Performance (LIHPC)* with the coordination of "Computational Geometry" activity since 2020. Director since 2022.

Elected member at the council of the Computer Science Graduate School of the University Paris-Saclay, since 2021.

Participation to doctoral and HDR thesis committees.....

Examiner for a PHD: 1 in Spain, 3 in France (including one as president of the Jury)

Reviewer for a PHD: 5 in France, 2 in Spain and 3 in Belgium

Examiner for a HDR: 1 in France

Reviewer for a HDR: 1 in France

Organization of scientific symposiums and conferences.....

Organization of the CEA/EDF/INRIA Computer science Summer School 2024 (topic: Hexahedral Meshing).

International Meshing Roundtable (IMR): 2013, 2014 et 2015 (*Conference Chairman*), 2023, 2024

Symposium on Trends in Unstructured Mesh Generation: 2013, 2015, 2017, 2018, 2019, 2021 and 2023

Adaptive Modeling and Simulation (ADMOS): 2012, 2017 and 2021

Engineering Computational Technology:2012 et 2014

Editeur invité pour le journal Computer Aided Design (Elsevier) en 2016 (special edition of IMR'15)

Research review.....

Expert reviewer for French ANR projects in 2016, and European ERC projects in 2014

Reviewer for scientific conferences and journals: IMR, Eurographics, Engineering with Computers (EWC), IJNME, Advances in Software and Engineering, TSI, CAD, Journal of Computational Physics, Siggraph.

Appendix - Publications

Publications are presented by year with the following indexation: [JI] for articles in international journal with selection committee, [JN] for articles in French journal with selection committee, [O] for articles in book, [CI] for invited presentation in international and national conferences, [CP] for presentations in international conferences with selection committee and proceedings, [CS] for presentations in international conferences with selection committee.

2023

Claire Roche, Franck Ledoux, Jérôme Breil, and Thierry Hocquetel. Block-structured quad meshing for supersonic flow simulations. SIAM International Meshing Roundtable, Amsterdam, 6-9 March, 2023 [CP]

Cédric Chevalier, Hubert Hirtz, Franck Ledoux, Sébastien Morais. Coupe: a mesh partitioning platform. SIAM International Meshing Roundtable, Amsterdam, 6-9 March, 2023 [CP]

Valentin Postat, Nicolas Le Goff, Simon Calderan, Franck Ledoux, and Guillaume Hutzler. Formal definition of hexahedral blocking operations using N-G-maps. SIAM International Meshing Roundtable, Amsterdam, 6-9 March, 2023 [CP]

Sébastien Mestrallet, François Protais, Christophe Bourcier, and Franck Ledoux. Limits and prospects of polycube labelings. SIAM International Meshing Roundtable, Amsterdam, 6-9 March, 2023 [CS]

Cédric Chevalier, Hubert Hirtz, Franck Ledoux, Sébastien Morais. Exploring Mesh Partitioning with the Coupe Partitioning Platform. SIAM Conference on Computational Science and Engineering, Amsterdam, March, 2023. [CP]

2022

François Protais, Maxence Reberol, Nicolas Ray, Etienne Corman, Franck Ledoux, Dmitry Sokolov. Robust Quantization for Polycube Maps. Computer Aided Design, special edition of SPM 150, 2022. [JI]

Nico Pietroni, Marcel Campen, Alla Sheffer, Gianmarco Cherchi, David Bommes, Xifeng Gao, Riccardo Scateni, Franck Ledoux, Jean-François Remacle and Marco Livesu. Hex-Mesh Generation and Processing: a Survey. ACM Transaction on Graphcis, 2022. [JI]

Corentin Dumery, François Protais, Sébastien Mestrallet, Christophe Bourcier, Franck Ledoux. Evocube: A Genetic Labelling Framework for Polycube-Maps, in Computer Graphics Forum. 2022. [JI]

Pierre-Alexandre Beaufort, Maxence Reberol, Denis Kalmykov, Heng Liu, Franck Ledoux, David Bommes. Hex me if you can. Computer Graphics Forum (SGP 2022), 2022 [JI]

2021

N. Le Goff, F. Ledoux and J.-Ch. Janodet Overlay Grid Mesh Adaptation using Discrete Interface Reconstruction In *13th Symp. on Trends in Unstructured Mesh Generation, 16th USCNM Conference*, Chicago, USA, July 2021. [CS]

N. Le Goff, F. Ledoux and J.-Ch. Janodet Intercode Hexahedral Meshing from Eulerian to Lagrangian Simulations chapter book in SEMA-SIMAI Springer Series in honour of the 60th birthday of Oubay Hassan, to appear in 2021. [O]

2020

F. Ledoux Maillage structuré pour le calcul scientifique : Et si la solution venait de l'informatique graphique? In *JFIG 2020, Journées Française d'Informatique Graphique*, LORIA, Nancy, 26 Novembre 2020. [CI]

S. Morais, C. Chevalier, and F. Ledoux. A Multilevel Mesh Partitioning Algorithm Driven by Memory Constraints. *SIAM Workshop on Combinatorial Scientific Computing (CSC)*, Feb. 11–13, Seattle, WS, U.S.A., 2020. [CP]

2019

N. L. Goff, F. Ledoux, J.-C. Janodet, and S. Owen. Guaranteed quality-driven hexahedral overlay grid method. *28th International Meshing Roundtable*, 2019. [CP]

S. Caldéran, F. Ledoux, and G. Hutzler. Dual-based user-guided hexahedral block generation using frame fields. *28th International Meshing Roundtable*, 2019. [CP]

F. Ledoux. Bringing frame field from research to industrial usage. In *FRAMES 2019, First Workshop on Frame-based hex mehing*, July 2019. [CI]

A.-M. Vintescu and F. Ledoux. Surface quad blocking using frame fields and mesh adaptation. In *12th Symp. on Trends in Unstructured Mesh Generation, 15th USCNM Conference*, Austin, USA, July 2019. [CS]

N. L. Goff, F. Ledoux, and J.-C. Janodet. An overlay grid driven geometric model extraction. In *12th Symp. on Trends in Unstructured Mesh Generation, 15th USCNM Conference*, Austin, USA, July 2019. [CS]

N. L. Goff, F. Ledoux, J. Janodet, and S. Owen. Hexahedral Overlay Grid Method with Guaranteed Element Quality. In *IX International Conference on Adaptive Modeling and Simulation (ADMOS 2019)*, Alicante, Spain, May 2019. CIMNE. [CS]

2018

N. Le Goff, F. Ledoux, and S. Owen. Hexahedral mesh modification to preserve volume. *Computer Aided Design*, 105:42–54, 2018. [JI]

N. Ray, D. Sokolov, M. Reberol, F. Ledoux, and B. Levy. Hex-dominant meshing: mind the gap! *Computer Aided Design*, 102:94–103, 2018. [JI]

H. Rakotoarivelo and F. Ledoux. Accurate manycore-accelerated manifold surface remesh kernels. In the proceedings of the 27th International Meshing Roundtable, Washington DC, USA, 2018. [CP]

Nicolas Ray, Dmitry Sokolov, Bruno Lévy, and Franck Ledoux. Hexahedral meshing: Mind the gap! In *Solid and Physical Modeling 2018*, Bilbao, Spain, June 2018. [CP]

H. Rakotoarivelo, F. Ledoux, and F. Pommereau. Parallel surface adaptation for manycore architectures. In *13th World Congress in Computational Mechanics (WCCM'18)*, New York, USA, July 2018. [CS]

N. L. Goff and F. Ledoux. A parallel shared-memory implementation of an overlay grid method. In *13th World Congress in Computational Mechanics (WCCM'18)*, New York, USA, July 2018. [CS]

2017

F. Ledoux. Paving the path towards automatic hexahedral mesh generation. In *27th International Meshing Roundtable*, Albuquerque, USA, October 2017. [CI]

H. Rakotoarivelo, F. Ledoux, F. Pommereau, and N. Le Goff. Scalable lock-free metric-based remeshing algorithm for manycore/numa architectures. In *Euro-Par 2017: Parallel Processing - 23rd International Conference on Parallel and Distributed Computing, Proceedings*, Lecture Notes in Computer Science. Springer, August 2017. [CP]

N. Le Goff, F. Ledoux, and S. J. Owen. Preservation improvement for interface reconstruction hexahedral methods. In *Procedia Engineering, 26rd International Meshing Roundtable (IMR26)*, 2017. [CP]

N. Le Goff and F. Ledoux. A scalable generic mesh data structure for multicore architecture. In *11th Symposium on Trends in Unstructured Mesh Generation, 14th USCNM Conference*, Montréal, Canada, July 2017. [CS]

F. Ledoux, B. Lévy, N. Ray, and D. Sokolov. Hex-dominant meshing for CAD models with boundary-alignment constraints. In *VIII International Conference on Adaptive Modeling and Simulation (ADMOS 2017)*, Verbania, Italia, June 2017. CIMNE. [CS]

F. Ledoux, K. Lewis, and W. Nissen. Frame-guided quadrilateral mesh generation for cad models. In *11th Symposium on Trends in Unstructured Mesh Generation, 14th USCNM Conference*, Montréal, Canada, July 2017. [CS]

2016

H. Rakotoarivelo, F. Ledoux, and F. Pommereau. Fine-grained locality-aware parallel scheme for anisotropic mesh adaptation. *Procedia Engineering*, 163:123 – 135, 2016. 25th International Meshing Roundtable. [CP]

Eric Angel, Cédric Chevalier, Franck Ledoux, Sébastien Morais, and Damien Regnault. Fpt approximation algorithm for scheduling with memory constraints. In *Euro-Par 2016: Parallel Processing - 22st International Conference on Parallel and Distributed Computing, Proceedings*, Lecture Notes in Computer Science, Lyon, France, August 2016. Springer. [CP]

R. Viertel, M.L. Staten, and F. Ledoux. Analysis of non-meshable automatically generated frame fields. In *research note in the 25th International Meshing Roundtable*, 2016. [CS]

2015

N. Kowalski, F. Ledoux, and P. Frey. Smoothness driven frame field generation for hexahedral meshing. *Computer Aided Design*, 72:65–77, 2016. [JI]

F. Ledoux. 3d frame fields, a tool for hexahedral meshing. In *10th Symposium on Trends in Unstructured Mesh Generation, 13th USCNM Conference*, San Diego, CA, USA, July 2015. [CS]

2014

N. Kowalski, F. Ledoux, and P. Frey. Automatic domain partitioning for quadrilateral meshing with line constraints. *Engineering with Computers*, December 2014. [JI]

N. Kowalski, F. Ledoux, and P. Frey. Block-structured hexahedral meshes for cad models using 3d frame fields. In *Procedia Engineering, 23rd International Meshing Roundtable (IMR23)*, volume 82, pages 59–71, 2014. [CP]

2013

N. Le Goff, F. Ledoux, and J.-Ch. Weill. An imprinting algorithm to insert geometric details into hexahedral meshes. In Jose Paulo Moitinho De Almeida, Pedro Díez, C. Tiago, and N. Parés, editors, *VI International Conference on Adaptive Modeling and Simulation (ADMOS 2013)*, pages 412–423, Lisbon, Portugal, June 2013. CIMNE. [CP]

F. Ledoux. Using combinatorial maps to handle 2d and 3d meshes in distributed memory context. In *9th Symposium on Trends in Unstructured Mesh Generation, 12th USCNM Conference*, Raleigh, North Carolina, USA, July 2013. [CS]

2012

A. Claisse, B. Després, E. Labourasse, and F. Ledoux. A new exceptional points method with application to cell-centered lagrangian schemes and curved meshes. *Journal of Computational Physics*, 231(11):4324–4354, 2012. [JI]

N. Kowalski, F. Ledoux, M. L. Staten, and S. J. Owen. Fun sheet matching: towards automatic block decomposition for hexahedral meshes. *Engineering with Computers*, pages 1–13, 2012. [JI]

C. Chevalier, G. Gropellier, F. Ledoux, and J.-Ch. Weill. Load balancing for mesh based multi-physics simulations in the arcane framework. In B.H.V Topping, editor, *8th conference on Engineering Computational Technology*. Civil-Comp Press, Edinburgh, UK, 2012. doi:10.4203/ccp.100.4, paper 4, 20 pages, Dubrovnik, Croatia, september 2012. [CP]

C. de Bellabre, F. Ledoux, and J.-Ch. Weill. An independent mesh model process to write meshing algorithms. In *8th conference on Engineering Computational Technology*. Civil-Comp Press, Edinburgh, UK, 2012. doi:10.4203/ccp.100.32, paper 32, 20 pages, Dubrovnik, Croatia, september 2012. [CP]

N. Kowalski, F. Ledoux, and P. Frey. A PDE based approach to multidomain partitioning and quadrilateral meshing. best technical paper award. In *Proceedings of the 21st International Meshing Roundtable*, pages 137–154. Springer, 2012. [CP]

F. Ledoux, N. Le Goff, S. J. Owen, M. L. Staten, and J.-Ch. Weill. A constraint-based system to ensure the preservation of sharp geometric features in hexahedral meshes. *Proceedings of the 21st International Meshing Roundtable*, pages 315–332, 2012. [CP]

2011

A. Claisse, B. Després, E. Labourasse, and F. Ledoux. Exceptional points in the glace scheme. In *11th USCNM Conference*, July 2011. [CS]

2010

F. Ledoux and J. F. Shepherd. Topological and geometrical properties of hexahedral meshes. *Engineering with Computers*, 26(4):419–432, 2010. [JI]

F. Ledoux and J. F. Shepherd. Topological modifications of hexahedral meshes via sheet operations: a theoretical study. *Engineering with Computers*, 26(4):433–447, 2010. [JI]

M. L. Staten, J. F. Shepherd, F. Ledoux., and K. Shimada. Hexahedral mesh matching: Converting non-conforming hexahedral-to-hexahedral interfaces into conforming interfaces. *International journal for numerical methods in engineering*, 82(12):1475–1509, 2010. [JI]

F. Ledoux, Y. Bertrand, and J.-Ch. Weill. *Generic Mesh Data Structure in HPC Context*, volume 26 of *Computation Technologies and Innovation Series*, chapter 3, pages 49–80. Saxe-Coburg Publications, Stirlingshire, 2010. [0]

F. Ledoux, J.-Ch. Weill, and Y. Bertrand. Definition of a generic mesh data structure in the high performance computing context. In the proceedings of the *6th conference on Engineering Computational Technology*. Civil-Comp Press, 2010. [CI]

2009

N. Kowalski, F. Ledoux, M. L. Staten, and S. J. Owen. Fun sheet matching: towards automatic block decomposition for hexahedral meshes. In *7th Symposium on Trends in Unstructured Mesh Generation, 10th USCNM Conference*, July 2009. [CI]

F. Ledoux, Y. Bertrand, and J.-Ch. Weill. Generic programming for designing a mesh data structure. In *11th International Society on Computing Grid Generation (ISGG) Conference*, Montreal, Canada, 12 pages, May 2009. [CP]

F. Ledoux, Y. Bertrand, and J.-Ch. Weill. Gmds: A generic mesh data structure. *research note in the 17th International Meshing Roundtable*, 2009. [CS]

M. L. Staten, J. F. Shepherd, F. Ledoux, and K. Shimada. Hexahedral mesh matching : Converting non-conforming interfaces into conforming interfaces. In *7th Symposium on Trends in Unstructured Mesh Generation, 10th USCNM Conference*, July 2009. [CS]

2008.....

K. Jurkova, F. Ledoux, R. Kuate, T. Rickmeyer, T. J. Tautges, and H. Zorgati. Local topological modification of hexahedral meshes part ii: Combinatorics and relation to boy surface. *ESAIM: Proceedings*, 24:34–45, 2008. [CP]

F. Ledoux and J.-Ch. Weill. An extension of the reliable whisker weaving algorithm. *Proceedings of the 16th International Meshing Roundtable*, pages 215–232, 2008. [CP]

2006.....

F. Ledoux, E. Brière de l'Isle, and J.-Ch. Weill. A pragmatic coupled approach to fit three-dimensional meshes onto cad geometries. In R. Montenegro B.H.V. Topping, G. Montero, editor, *Fifth International Conference on Engineering Computational Technology*. Civil-Comp Press, Stirlingshire, UK, Paper 7, 13 pages. doi:10.4203/ccp.84.7, 2006. [CP]

2003.....

F. Ledoux and L. Fuchs. Arrondi d'arêtes: de la topologie à la g1-continuité. *Revue internationale de CFAO et d'informatique graphique*, 18(2):215–230, 2003. [JN]

2002.....

F. Ledoux, J.-M. Mota, A. Arnould, C. Dubois, P. Le Gall, and Y. Bertrand. Spécifications formelles du chanfreinage. *Techniques et Sciences Informatiques*, (21):1073–1098, 2002. [JN]

2001.....

F. Ledoux, A. Arnould, P. Le Gall, and Y. Bertrand. Geometric modeling with casl. In *Recent Trends in Algebraic Development Techniques, selected papers of 15th International Workshop on Algebraic Development Techniques WADT'01*, volume 2267, pages 176–200. Springer-Verlag, 2001. [CP]

1999.....

F. Ledoux. A formal specification formalism dedicated to geometric modeling. In *13th International Workshop on Algebraic Development Techniques, WADT'99*, 1999. [CP]