

1. Biographical and Personal Information

Pascal Frey, born July 29, 1963, Metz, France; French citizen.

Married, 5 children.

Professional address: Laboratoire Jacques Louis Lions, Université Pierre et Marie Curie
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2. Academic History

MS in image processing, Strasbourg University, 1988.

PhD thesis in Applied Mathematics, Strasbourg University, 1993, thesis: "Automatic mesh generation in voxel sets. Biomedical application to finite element methods".

Habilitation thesis (HDR) in Mathematics, UPMC, Paris, 2002, thesis: "Contribution to construction, optimisation and adaptation of surface meshing techniques".

3. Employment Record

Visiting scholar, Rensselaer Polytechnic Institute, Troy, NY, USA, dec. 1993-dec. 1995.

Research scientist, INRIA Rocquencourt, 1996-2002.

Professor of Mathematics, UPMC, Paris, since 2003.

Visiting Professor, Universidad de Chile, Santiago, sep. 2007-dec. 2009.

Director, Institute for Scientific Computing and Simulation (ICS), UPMC, since 2010.

4. Professional Societies

Society for Industrial and Applied mathematics (SMAI).

5. Teaching Experience

Université Pierre et Marie Curie, Paris VI, 2003-.

Mathematical foundations of numerical methods, Master 1.

Mesh generation, adaptation and error estimates, Master 2.

NM454, Scientific visualisation, Master 2.

NM491, Adaptation methods for numerical simulation, Master 2.

M5105, Analyse numérique des EDP, Master 2.

Ecole Centrale de Paris, 2003-.

Numerical simulations in complex geometries, 2nd year, mathematics and modelling.

Universidad de Chile, Departamento de Ingeniería Matemática, 2008-2009,

MA691, Simulación numérica de problemas de EDP sobre dominios complejos, post-grado.

MA53L-1, Analisis numerico de ecuaciones en derivadas parciales, pre-grado.

MA3301, Simulacion Numerica: modelos, analisis y calculo, pre-grado.

6. Publications

(see attached list)

7. Ph.D. Students, thesis titles, and year of graduation

- Frédéric Alauzet, "Adaptation de maillage anisotrope en trois dimensions. Application aux simulations instationnaires en mécanique des fluides", (co-advisor with Pr. B. Mohammadi), Montpellier, dec. 2003.
- Larvi Debiane, "Application de l'adaptation de maillage en mécanique des fluides, combustion et traitement de l'image", (co-advisor with B. Mohammadi), Montpellier, dec. 2004.
- Cécile Dobrzynski, "Adaptation de maillage anisotrope 3d et application l'aéro-thermique des bâtiments", (co-advisor with O. Pironneau), UPMC Paris, nov. 2005.
- Yann Mauffrey, "Etude du bruit d'interaction pale-sillage d'un rotor d'hélicoptère", UPMC Paris, sept. 2008.
- Gilles Kluth, "Analyse mathématique et numérique de systèmes hyperélastiques et introduction de la plasticité", (co-advisor with B. Desprès), UPMC, Paris, dec. 2008.
- Cuc Bui Thi Thu, "Etude de schémas numériques pour des problèmes de transport, application aux écoulements multiphasiques" (co-advisor with B. Maury), UPMC, Paris, 2009.
- Alexandra Claisse, "Méthodes levelsets appliquées à la reconstruction de surfaces discrètes", UPMC, nov. Paris.
- Nicolas Nemitz, "Couplage de techniques d'adaptation de maillages à des méthodes levelsets pour la gestion des interfaces dans les simulations multi-fluides", post. doct., sept. 2006-sept. 2007.
- Maya De Buhan, "Modélisation mathématique du comportement mécanique du tissu cérébral", (co-tutelage with A. Osses, Universidad de Chile), UPMC, Paris, nov. 2010.
- Charles Dapogny, "Analyse numérique de méthodes d'optimisation géométrique et topologique" (co-advisor with G. Allaire), 2010-.
- Guilhem Lepoutier, "Etude numérique de problèmes de transport (co-advisor with B. Maury), 2010-.
- Thi Thanh Mai Ma, "Modélisation et simulation numérique de problème à frontière libre en mécanique des fluides par des méthodes levelset et d'adaptation de maillage, 2010-.
- Nicolas Kowalski, "Maillage hexadrique (co-advisor with F. Ledoux), 2010-.

8. Editorial boards and reviewer

Editorial board: Int. Journal for Numerical Methods in Fluids.

Reviewer for: CMAME, CMBBE, C.R. Acad. Sciences, Computational Geosciences, Computers and Structures, Engineering with Computers, Finite Elements in Analysis and Design, Int. J. Numer. Methods in Engng., Int. J. Numer. Methods in Fluids, JCAM, J. Comput. Physics, Journal of Theoretical Biology, JZUS, M2AN, Mathematical and Computer Modelling, ESAIM Proc., TSI, Solid Modelling, IEEE Trans. Visualization and Comp. Graphics.

European expert for scientific computing.

9. Principal Invited lectures, colloquia, seminars

- Cours maillage, école CEA-EDF-INRIA, Rocquencourt, 5-7 fév. 2003;
Anisotropic mesh adaptation for CFD computations, Beijing, sept., 2003;
Generation of computational meshes from MRI and CT-scan data, CEMRACS, Luminy, July 2004;
Approximation de surfaces, école CEA-EDF-INRIA, Rocquencourt, 20-23 sept. 2004;
Practical issues about anisotropic mesh adaptation, 13th Conf. on Finite Elements for Flow Problems, Swansea, UK, April 2005;
Anisotropic Delaunay mesh adaptation for numerical simulations, 3rd Pacific Rim Conference on Mathematics, Shanghai, China, Sept. 2005;
Mesh improvement for biomedical applications, école CEA-EDF-INRIA, Rocquencourt, 6-9 déc. 2005;
Perspectives of local anisotropic Delaunay mesh adaptation, 14th Int. Meshing Roundtable, San Diego, CA, USA, Sept. 2005;
From medical images to computational meshes, 2nd Workshop on Computer Assisted Diagnosis and Surgery, Santiago, Chile, March 2006;
A differential geometry approach to mesh generation, CIMPA summer school on differential geometry: theory and applications, Shanghai, 7-21 August 2006;
Autour de l'adaptation de maillage pour des simulations numériques, Collège de France, 9 Feb. 2007.
A few applications of anisotropic mesh adaptation, Swansea University, UK, 5 July 2007.
Quelques résultats et applications de l'adaptation de maillage pour des simulations numériques, CMM, Universidad de Chile, 18 Oct. 2007.
Anisotropic mesh adaptation for numerical applications, Valparaíso Numérico III, 4 Dec. 2007.
On some applications of levelset methods to fluid dynamics (Stokes) and geometry, Universidad de Concepcion, 15 Apr. 2009.
Simulation numérique d'un problème bifluide, Journées en l'honneur de John Ball LJLL, UPMC, 25-26 mars 2010.
Anisotropie, adaptation de maillage et méthodes de lignes de niveau, applications à un problème bifluide et à un problème de géométrie, Université Strasbourg 1, avril 2010.
Anisotropy, mesh adaptation and level set methods for dynamic simulations, Tetrahedron III, Swansea, UK, sept. 2010.
Anisotropic mesh adaptation for dynamic simulations, EAFIT Universidad, Medellín, 25 nov. 2010.
Level sets and anisotropic mesh adaptation, ICAMI 2010, San Andres Island, nov. 28 - dec. 3, 2010.
Adaptation de maillage pour le suivi d'interfaces, Séminaire sur la mécanique des fluides numérique, IHP, Paris, jan. 25-26, 2011.
Adaptation de maillage dynamique, Congrès français de mécanique, Besançon, aug. 28 - sept. 2, 2011.
Surface meshing: theory and fundamentals, short course, 20th IMR, Paris, oct 23, 2011.
Anisotropic mesh adaptation for accurate interface capturing, ACOMEN, Liège, nov. 14-17, 2011.

10. Organizing committees

Summer schools

- Cemracs 2007, summer school and research center on "pre and post processing in scientific computing", Luminy 23 July - 31 Aug. 2007.
Tetrahedron 2, Inria-Rocquencourt 17-19 Oct. 2007.
Symposium "Current and New Trends in Scientific Computing", Santiago, 5-9 Oct., 2009.
CEA-EDF-INRIA, "mesh adaptation", june 14-26, 2010.
Bioinformatics-biomathematics, Roscoff, july 2001.

Seminars and research groups at UPMC

- Numerical methods, 2003-2007,
Scientific visualization, 2005-2007,
Scientific computing, 2010-

Publications of Pascal Frey

1. Books, chapters in books

- [1] H. Borouchaki, D. Chappelle, P.L. George, P. Laug, and P. Frey. Estimateurs d'erreur géométriques et adaptation de maillage. In P.L. George, editor, *Maillages et Adaptation. Traité Mécanique et Ingénierie des Matériaux, Méthodes Numériques*. Hermès Science, Paris, Oxford, 2001.
- [2] P. Frey. Arbres et mailles. In P.L. George, editor, *Maillage et adaptation. Traité Mécanique et Ingénierie des Matériaux, Méthodes Numériques*. Hermès Science, Paris, Oxford, 2001.
- [3] P. Frey and P.L. George. Mesh generation and related topics. application to finite elements. In F. Dubois, editor, *New Advances in Computational Fluid Dynamics - Theory, Methods and Applications*, pages 1–68. Higher Education Press, 2001.
- [4] P.L. George, H. Borouchaki, P. Frey, P. Laug, and E. Saltel. Mesh generation and mesh adaptivity : theory, techniques. In R. de Borst E. Stein and T.J.R. Hughes, editors, *Encyclopedia of computational mechanics*. Higher Education Press, John Wiley & Sons, 2004.
- [5] P. Frey. Differential geometry: theory and applications. volume 9 of *Series in Contemporary Applied Mathematics*, chapter A differential geometry approach to mesh generation. World Scientific, 2008.
- [6] P. Frey and P.L. George. *Le maillage facile*. Hermès Science, Paris, Oxford, 2003.
- [7] P. Frey and P.L. George. *Maillages : applications aux éléments finis*. Hermès Science, Paris, 1999.
- [8] P. Frey and P.L. George. *Mesh generation. Application to finite elements*. Hermès Science, Paris, Oxford, 2000.
- [9] P. Frey and P.L. George. *Mesh generation. Application to finite elements*. Wiley, 2nd edition, 2008.

2. Referred papers

- [10] P. Frey and M. Gautherie. Fully automatic mesh generation in a set of voxels. *ITBM*, 12:428–442, 1991.
- [11] P. Frey and et al. Numerical processing of 3d mri data prior to thermal modelling and clinical treatment planning. *Ultrasonics*, 30:137–138, 1992.
- [12] P. Frey, T. Sublon, and M. Gautherie. 3d characterization of ultrasonic fields for hyperthermia treatments. *Ultrasonics*, 30:121–123, 1992.
- [13] M. Gautherie and P. Frey. Toward clinical planning of ultrasound hyperthermia. *Ultrasonics*, 30:135–137, 1992.
- [14] P. Frey, B. Sarter, and M. Gautherie. Fully automatic mesh generation for 3d domains based upon voxel sets. *Int. j. numer. meth. eng.*, 37:2735–2753, 1994.
- [15] P. Frey and H. Borouchaki. Finite element meshes by means of voxels. *Lecture Note in Computer Science, DGCI*, 1176:115–125, 1996.
- [16] H. Borouchaki, P. Frey, and P.L. George. Maillage de surfaces paramétriques. partie iii: Eléments quadrangulaires. *C.R. Acad. Sci., Paris, Série I*, t. 325:551–556, 1997.
- [17] P. Frey and H. Borouchaki. Geometric evaluation of finite element surface meshes. *Finite Element in Analysis and Design*, 31:33–53, 1997.
- [18] P. Frey and H. Borouchaki. Qualité des maillages de surfaces. *C.R. Acad. Sci., Paris, Série I*, t. 325:925–930, 1997.
- [19] P. Frey and H. Borouchaki. Triangulation des surfaces implicites. *C.R. Acad. Sci., Paris, Série I*, t. 325:101–106, 1997.
- [20] H. Borouchaki and P. Frey. Adaptive triangular-quadrilateral mesh generation. *Int. j. numer. methods eng.*, 41:915–934, 1998.
- [21] H. Borouchaki, F. Hecht, and P. Frey. Mesh gradation control. *Int. j. numer. methods eng.*, 43(6):1143–1165, 1998.
- [22] P. Frey and H. Borouchaki. Geometric evaluation of finite element surface meshes. *Finite Elements in Analysis and Design*, 31:33–53, 1998.
- [23] P. Frey and H. Borouchaki. Geometric surface mesh optimization. *Computing and Visualization in Science*, 1:113–121, 1998.

- [24] P. Frey, H. Borouchaki, and P.L. George. 3d delaunay mesh generation coupled with an advancing-front approach. *Comp. Meth. in Appl. Mech. and Engng.*, 157(1-2):115–131, 1998.
- [25] P.P. Pébay and P. Frey. Delaunay-admissibilité des triangulations de surfaces. *C.R. Acad. Sci., Paris, Série I*, t. 327:313–318, 1998.
- [26] H. Borouchaki and P. Frey. Maillage géométrique des surfaces. *Revue Européenne des Eléments Finis*, 8:47–75, 1999.
- [27] P. Frey and H. Borouchaki. Surface mesh quality evaluation. *Int. j. numer. methods eng.*, 45:101–118, 1999.
- [28] F. Alauzet, P. Frey, and B. Mohammadi. Adaptation de maillages pour des problèmes instationnaires. *C.R. Acad. Sci., Paris, Série I*, 336:773–778, 2002.
- [29] P. Frey and H. Borouchaki. Simplification des cartes géographiques par minimisation de la déformation locale. *C.R. Acad. Sci., Paris, Série I*, 334:227–232, 2002.
- [30] F. Alauzet, P.L. George, B. Mohammadi, P.J. Frey, and H. Borouchaki. Transient fixed point based unstructured mesh adaptation. *Int. j. numer. methods fluids*, 43(6-7):729–745, 2003.
- [31] P. Frey and H. Borouchaki. Surface meshing using a geometric error estimate. *Int. j. numer. methods eng.*, 58(2):227–245, 2003.
- [32] J.D. Boissonnat, R. Chaine, P. Frey, G. Malandain, G. Salmon, E. Saltel, and M. Thiriet. From arteriographies to computational flow in saccular aneurisms: the inria experience. *MedIA*, 2004.
- [33] P. Frey. Generation and adaptation of computational surface meshes from discrete anatomical data. *Int. j. numer. methods eng.*, 60:1049–1074, 2004.
- [34] H. Borouchaki and P. Frey. Simplification of surface mesh using hausdorff envelope. *Comp. Meth. in Appl. Mech. and Engng.*, 194(48-49):4864–4884, 2005.
- [35] P. Frey and F. Alauzet. Anisotropic mesh adaptation for cfd computations. *Comp. Meth. in Appl. Mech. and Engng.*, 194(48-49):5068–5082, 2005.
- [36] J.F. Gerbeau, M. Vidrascu, and P. Frey. Fluid-structure interaction in blood flows on geometries coming from medical imaging. *Computers and Structures*, 83(2-3):155–165, 2005.
- [37] C. Dobrzynski, P. Frey, B. Mohammadi, and O. Pironneau. Fast and accurate simulations of air-cooled structures. *Comp. Meth. in Appl. Mech. and Engng.*, 195(23-24):3168–3180, 2006.
- [38] F. Alauzet, P. Frey, P.L. George, and B. Mohammadi. 3d transient fixed point mesh adaptation for time-dependent problems: Application to cfd simulations. *J. Comp. Phys.*, 222:592–623, 2007.
- [39] C. Dobrzynski, P. Frey, and O. Pironneau. Couplage et adaptation de maillage anisotrope pour des simulations de flux d’air dans des géométries complexes. *REEF*, 16(6-7):749–773, 2007.
- [40] V. Ducrot and P. Frey. Contrôle de l’approximation géométrique d’une interface par une métrique anisotrope. *C.R. Acad. Sci., Paris, Série I*, (345):537–542, 2007.
- [41] C. Bui, P. Frey, and B. Maury. Méthode du second membre modifié pour la gestion de rapports de viscosité importants dans le problème de stokes bifluide. *C.R. Acad. Sci., Paris, Série I*, (336):524–529, 2008.
- [42] A. Claisse, V. Ducrot, and P. Frey. Levelset and mesh adaptation. *DCDS-A*, 23(1-2):165–183, 2008.
- [43] A. Claisse and P. Frey. Construction d’une courbe régulière d’approximation d’un ensemble de points. *C.R. Acad. Sci., Paris, Série I*, 346:1017–1022, 2008.
- [44] A. Claisse and P. Frey. Level set driven smooth curve approximation from unorganized or noisy point set. *ESAIM Proc.*, 27:254–271, 2009.
- [45] C. Bui, P. Frey, and B. Maury. A coupling strategy based on anisotropic mesh adaptation for solving two-fluid flows. *Int. j. numer. methods fluids*, 66(10):1226–1247, 2010.
- [46] A. Claisse and P. Frey. On numerical schemes for solving a nonlinear pde with a mean curvature term on triangular meshes. *J. Comp. Phys.*, submitted, 2010.
- [47] G. Allaire, Ch. Dapogny, and P. Frey. Topology and geometry optimization of elastic structures by exact deformation of simplicial mesh. *C.R. Acad. Sci., Paris, Série I*, 2011.
- [48] A. Claisse and P. Frey. A nonlinear pde model for reconstructing a regular surface from sampled data using a level set formulation on triangular meshes. *J. Comp. Phys.*, 230(12):4636–4656, 2011.

- [49] M. de Buhan and P. Frey. A generalized model of nonlinear viscoelasticity : numerical issues and application to the simulation of the brain shift. *SIAM J. Sci. Comput*, 2011.
- [50] M. de Buhan and P. Frey. A generalized model of nonlinear viscoelasticity: numerical issues and applications. *Int. J. Numer. Methods Engng.*, 86(13):1544–1557, 2011.
- [51] C. Bui, Ch. Dapogny, and P. Frey. An accurate anisotropic adaptation method for solving the level set advection equation. *Int. j. numer. methods fluids*, 2012.
- [52] Ch. Dapogny and P. Frey. Computation of the signed distance function to a discrete contour on adapted triangulation. *Calcolo*, 2012.

3. Conference proceedings

- [53] E. Engler and P. Frey et al. Automatic image processing of mr images using a neural network. In *10th Oncology Forum*, Paris, 1990.
- [54] E. Engler and P. Frey et al. Mr imaging of brain tumors: automatic segmentation using a neural network. In *12th Cong. of the French Neuroradiology Soc.*, Strasbourg, 1990.
- [55] P. Frey and M. Gautherie. Thermal simulations in thermotherapy: methodological approaches. In *Congress on biomathematics and computer science*, Paris, 1990. INSERM.
- [56] P. Frey and M. Gautherie. Thermal simulations in thermotherapy: methodological approaches. In *Congress on biomathematics and computer science*, Paris, 1990. INSERM.
- [57] P. Frey. 3d data processing and numerical methods of modelling for clinical hyperthermia treatment planning. In *15th Int. Congr. Clinical Hyperthermia*, Lyon, 1992.
- [58] P. Frey. 3d numerical data processing prior to thermal modeling and clinical planning of ultrasound hyperthermia of brain tumors. In *14th Int. Conf. Engng. in Medicine and Biology Society*, Paris, 1992.
- [59] P. Frey. Numerical processing of 3d mri data prior to thermal modeling and treatment planning of ultrasound hyperthermia of brain tumors. In *6th Int. Congr. Hyperthermic Oncology*, Tucson, AZ, USA, 1992.
- [60] P. Frey and al. Treatment planning in hyperthermia of brain tumors: numerical mri data processing prior to thermal and acoustic modelling. In *12th Oncology Forum*, Paris, 1992.
- [61] P. Frey and et al. 3d data segmentation and mesh generation of pathological brain tissue based on 3d mri data in view of acoustic and thermal modelling. In *Computer Assisted Radiology*, Berlin, Germany, 1993.
- [62] P. Frey and et al. Automatic 3d mesh generator based upon mri voxel data for 3d numerical acoustic and thermal modeling using the finite element method. In *2nd European Conf. on Engineering and medicine*, Stuttgart, Germany, 1993.
- [63] B. Sarter, P. Frey, and M. Gautherie. Numerical processing of 3d mri data prior to acoustic and thermal modelling. In *2nd European Conf. on Engineering and medicine*, Stuttgart, Germany, 1993.
- [64] H. Borouchaki and P. Frey. Tétraédrisation de delaunay basée sur une approche frontale. In *Strucome' 96*, Paris, 1996.
- [65] H. Borouchaki, P. Frey, and P.L. George. Unstructured triangular-quadrilateral mesh generation. application to surface meshing. In *5th Int. Meshing Roundtable*, pages 229–242, Pittsburgh, PA, USA, 1996. Sandia.
- [66] P. Frey, H. Borouchaki, and P.L. George. Delaunay tetrahedralization using an advancing-front approach. In *5th Int. Meshing Roundtable*, pages 31–43, Pittsburgh, PA, USA, 1996. Sandia.
- [67] H. Borouchaki and P. Frey. Adaptive triangular-quadrilateral mesh generation. In *Nafems world congress'97*, pages 1105–1118, Stuttgart, Germany, 1997.
- [68] H. Borouchaki and P. Frey. Optimization tools for adaptive surface meshing. In *McNu'97*, Northwestern University, IL, USA, 1997.
- [69] H. Borouchaki, F. Hecht, and P. Frey. Mesh gradation control. In *6th Int. Meshing Roundtable*, Park City, UT, USA, 1997. Sandia.
- [70] P. Frey and H. Borouchaki. Surface mesh evaluation. In *6th Int. Meshing Roundtable*, ParkCity, UT, USA, 1997. Sandia.

- [71] P. Frey and H. Borouchaki. Unit surface mesh simplification. In *McNu'97*, Northwestern University, IL, USA, 1997.
- [72] P. Frey, H. Borouchaki, F. Hecht, and E. Saltel. Adaptive surface mesh optimization. In *6th Int. Conf. on Numerical Grid Generation in Computational Field Simulations*, Greenwich, UK, 1998.
- [73] P. Frey and L. Maréchal. Fast adaptive quadtree mesh generation. In *7th Int. Meshing Roundtable*, Dearborn, MI, USA, 1998. Sandia.
- [74] P.P. Pébay and P. Frey. *a priori* delaunay conformity. In *7th Int. Meshing Roundtable*, Dearborn, MI, USA, 1998. Sandia.
- [75] M. Thiriet and et al. Computational models of flow in cerebral aneurysms. In *11th Conf. of the ESB*, Toulouse, 1998.
- [76] Borouchaki, P. Frey, P.L. George, P. Laug, and É. Saltel. Mailleur autoadaptatif de surfaces et de volumes. In *Journées Cetim*, Senlis, 1999.
- [77] P. Frey. About surface remeshing. In *9th Int. Meshing Roundtable*, New Orleans, LA, USA, 2000. Sandia.
- [78] P. Frey. Efficient decimation of large-size surface meshes. In *Scanning'2000*, Paris, 2000.
- [79] F. Alauzet, P.L. George, B. Mohammadi, P.J. Frey, and H. Borouchaki. Transient fixed point based unstructured mesh adaptation. In *Computational Fluid Dynamics*, Swansea, UK, 2001.
- [80] P. Frey. Anisotropic surface remeshing. In *1st MIT Conference*, Cambridge, MA, USA, 2001.
- [81] P. Frey and H. Borouchaki. Surface meshing using a geometric error estimate. In *3rd Symposium on Trends in Unstructured Mesh Generation*, Dearborn, IL, USA, 2001.
- [82] F. Alauzet and et al. 3d adaptive control and shape design platform for unstructured meshes. In *AIAA-2002-0592*, Reno, NE, USA, 2002.
- [83] F. Alauzet, P. Frey, P.L. George, and B. Mohammadi. Unstructured mesh adaptation for transient cfd problems. In *5th World Congress on Computational Mechanics*, Vienna, Austria, 2002.
- [84] P. Frey. Mesh adaptation in biomedical applications. In *MS4CMS'02*, Paris, 2002.
- [85] P.L. George, P. Frey, and F. Alauzet. Automatic generation of 3d adapted meshes. In *5th World Congress on Computational Mechanics*, Vienna, Austria, 2002.
- [86] F. Alauzet and P. Frey. Anisotropic mesh adaptation. applications to transient cfd problems. In *2nd MIT Conference*, Cambridge, MA, USA, 2003.
- [87] F. Alauzet, P. Frey, and B. Mohammadi. Adaptation de maillages non structurés pour les problèmes instationnaires en trois dimensions. In *CANUM*, La Grande Motte, 2003.
- [88] P. Frey. Medit: a multiplatform visualisation tool. In *2nd MIT Conference*, Cambridge, MA, USA, 2003.
- [89] P. Frey and F. Alauzet. Anisotropic mesh adaptation for transient cfd problems. In *12th Int. Meshing Roundtable*, Santa Fe, NM, USA, 2003. Sandia.
- [90] P. Frey and H. Borouchaki. Simplification of terrains by minimization of the local deformation. In L. Schumaker, editor, *5th Int. Conf. on Curves and Surfaces*, Saint Malo, 2003. Nashboro Press.
- [91] P.L. George, P. Frey, P. Laug, and H. Borouchaki. Automatic generation of 3d adapted meshes. In L. Schumaker, editor, *5th Int. Conf. on Curves and Surfaces*, Saint Malo, 2003. Nashboro Press.
- [92] F. Alauzet, P. Frey, and P.L. George. Anisotropic mesh adaptation for rayleigh-taylor instabilities. In *Eccomas*, Jyväskylä, Finland, 2004.
- [93] C. Dobrzynski, O. Pironneau, and P. Frey. Numerical coupling for air flow computations in complex architectures. In *Eccomas*, Jyväskylä, Finland, 2004.
- [94] P. Frey. Anisotropic metrics for mesh adaptation. In *Eccomas*, Jyväskylä, Finland, 2004.
- [95] P. Frey. Anisotropic delaunay mesh adaptation for numerical simulations. In *3rd Pacific RIM conference*, Shanghai, China, 2005.
- [96] P. Frey. Perspectives of local anisotropic delaunay mesh adaptation. In Sandia National Labs., editor, *Proc. 14th Int. Meshing Roundtable*, San Diego, 2005.

- [97] P. Frey. Practical issues about mesh adaptation. In *13th Conf. on Finite Elements for Flow Problems*, Swansea, UK, 2005.
- [98] A. Pages, M. Sermesant, and P. Frey. Generation of computational meshes from mri and ct scan data. In E. Cancès J.F. Gerbeau, editor, *Proc. ESAIM, EDP Sciences*, pages 213–223, Luminy, 2005.
- [99] F. Alauzet, A. Loseille, A. Dervieux, and P. Frey. Multi-dimensional continuous metric for mesh adaptation. In Sandia National Labs., editor, *Proc. 15th Int. Meshing Roundtable*, Birmingham, 2006.
- [100] A. Loseille, A. Dervieux, P. Frey, and F. Alauzet. Achievement of global second order mesh convergence for discontinuous flows with adapted unstructured meshes. In *AIAA-2007-4186*, Miami, FL, USA, 2007.
- [101] C. Dobrzynski and P. Frey. Anisotropic delaunay mesh adaptation for unsteady simulations. In R. Garimella, editor, *17th Int. Meshing Roundtable*, pages 177–194, Pittsburg, PA, USA, 2008. Sandia.
- [102] V. Ducrot and P. Frey. Anisotropic level set adaptation for accurate interface capturing. In R. Garimella, editor, *17th Int. Meshing Roundtable*, pages 159–176, Pittsburg, PA, USA, 2008. Sandia.

4. Research reports and preprints

- [103] P. Frey and et al. Concept of adaptative thermal modelling for personalized treatment planning. COMAC-BME workshop on hyperthermia treatment planning, Strasbourg, 1991.
- [104] P. Frey and et al. Conceptual and methdological advances in planning cancer therapy. COMAC-BME workshop on hyperthermia treatment planning, Strasbourg, 1991.
- [105] P. Frey and M. Gautherie. Finite element mesh for 3d thermal modelling. COMAC-BME workshop on hyperthermia treatment planning, Lisbon, Portugal, 1991.
- [106] P. Frey, T. Sublon, and M. Gautherie. 3d characterization of ultrasonic transducers. COMAC-BME workshop on hyperthermia treatment planning, Lisbon, Portugal, 1991.
- [107] P. Frey. Optimization of tetrahedral meshes. ICCA meeting, Troy, NY, USA, 1994.
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