

Gilles A. Francfort

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Degrees

- 06/89 Habilitation à diriger des recherches,
 Université Paris 6, Paris.
- 06/82 Ph.D. in Mechanical Engineering,
 Stanford University, Stanford.
- 06/78 Diplôme d'Ingénieur Civil des Ponts et Chaussées,
 Ecole Nationale des Ponts et Chaussées, Paris.

Professional Experience

- 09/14 - 02/15
02/16 - 06/16 Visiting Professor, Courant Institute,
01/17 - 06/17 New York University, New York.
01/18 - 06/18
- 10/11 - 09/16 Senior Member, Institut Universitaire de France, Paris.
- 09/94 - now Professor, Department of Mathematics,
 Université Paris-Nord, Villetaneuse.
- 09/93 - 05/94 Visiting Associate Professor, Department of Mathematics,
 Carnegie Mellon University, Pittsburgh.
- 10/83 - 10/92 Research Scientist, Mathematics Division,
 Laboratoire Central des Ponts et Chaussées, Paris.
- 09/90 - 06/91 Senior Research Scientist, Courant Institute,
 New York University, New York.

Non-academic cursus

- 10/82 - 10/83 Military service, France.
- 10/92 - 08/93 Personal leave.

Honors

- 04/02 Prix Thématique Paul Doistau-Emile Blutet,
 French Academy of Sciences (jointly with J.-J. Marigo).

Plenary Conferences

- 05/98 Congrès National d'Analyse Numérique 1998, Arles, France.
- 03/10 GAMM 2010, 81st Annual Meeting, Karlsruhe, Germany.
- 07/11 ICIAM 2011, 7th International Congress on Industrial and
 Applied Mathematics, Vancouver, Canada.

Supervision

- 12 /98 Blaise Bourdin (Paris-Nord): *Une méthode variationnelle en Mécanique de la rupture, théorie et applications numérique*, highest honors.
Currently Professor, L.S.U., Baton Rouge, USA.
- 10/05 Jean-François Babadjian (Paris-Nord): *Dimensional reduction for heterogeneous, cracked or slit materials*, highest honors.
Currently Professeur, Université Paris-Sud, Orsay, France.
- 02/05-02/06 Alessandro Ferriero (Paris-Nord & Ecole Polytechnique): Post-Doctoral Fellow. Research topic: *Fatigue*.
Currently Profesor Contratado Doctor, Universidad Autónoma de Madrid, Spain.

Editorial Board

Annales de l'Institut Henri Poincaré (C) Analyse Non Linéaire
Applied Mathematics Research Express (defunct)
Mathematics and Mechanics of Complex Systems

Contractual and sponsored activity

- 16-19 co-Principal Investigator: NSF grant DMS-1615839
"Fracture in Soft Organic Solids – The Variational View".
- 07-10 Member: ANR : *"Mouvements d'Interfaces, Calcul et Applications"*.
- 04-09 Member: Multimath European Network: *"Multi-scale modelling and characterisation for phase transformations in advanced materials"* (MRTN-CT-2004-505226).
- 98-04 Member: TMR European Network: *"Phase Transitions in Crystalline Solids"*.

Various Services

- Referee for: Arch. Rat. Mech Anal., *J. Mech. Phys. Solids*, M2AN, M2AS, Comptes Rendus Acad. Sc. Paris, *J. Convex Anal.*, S.I.A.M. J. Appl. Math., *S.I.A.M. J. Math. Anal.*, *J. Elasticity*, *Port. Mat.*, *Interfaces Free Bdaries*, *Eur. J. Mech.*, Ann. Fac. Sc. Toulouse, *Appl. Math. Optim.*, *Asymp. Anal.*, *Proc. Royal Soc. London*, *Proc. Royal Soc. Edinburgh*, *Nonlinear Anal.*, *J. Nonlinear Sc.*, *Com. Part. Dif. Eq.*, *Eur. J. Appl. Math.*, *ESAIM: COCV*, *Zeit. Ang. Math. Mech.*, *Annali di Mat*, *Proc. A.M.S.*, *Cont. Mech and Therm.*, *J. Diff. Eqns.*, *Nonlinearity*, *J. Funct. Anal.*, *Comm. Pure Applied Maths.*, *J. Maths Pures Appliquées*, *Optimization*, *Cont. Discrete Dyn. Systems*, M3AS, *Annali Scuola Norm. Sup. Pisa*, *Comp. Appl. Maths.*, *J. Dyn. Differential Eqns.*, *S.I.A.M. Mult. Mod. Sim.*, *IMA J. Applied Maths*, *Calc. Var.*, *Eng. Fracture Mech.*
+ about 10 books.

Expertise for: European Research Council, International Centre for
Mathematical Sciences Research-in-groups, Ecos Sud,
Mathematics Responsive Mode, Engineering and Physical
Sciences Research Council, IndAM, INRIA Research Project
Teams, e-GAP (The Royal Society).

Conferences organized

- 06/92 Member of Organization Committee: *First European Congress of Mathematics*, Paris, July 06 -10, 1992.
- 09/04 Co-organizer with A. Mielke (Stuttgart) of *Workshop on Rate Independent Processes*, Paris, Aug. 30 – Sept. 01, 2004.
- 07/06 Co-organizer with G. Dal Maso (Trieste), V. Ferone (Napoli), F. Murat (Paris) of Special Session: *P.D.E.'s and applications*, in *Joint Meeting Mathematics and Its Applications*, Torino, July 03 – 07, 2006.
- 02/07 Co-organizer with G. Dal Maso (Trieste), A. Mielke (Stuttgart), T. Rubicek (Prague) of Oberwolfach Workshop: *Analysis and Numerics for Rate Independent Processes*, Oberwolfach, Feb. 25 – Mar. 03, 2007.
- 07/07 Co-organizer with K. Hamdache (Palaiseau), L. Mascarenhas (Lisboa), F. Murat (Paris) of Conference: *Des équations aux dérivées partielles au calcul scientifique, Congrès en l'honneur de Luc Tartar*, Paris, July 02 – 06, 2007.
- 09/07 Member Scientific Committee CEDYA 2007
X Congreso de Matemática Aplicada, Sevilla, Sept. 24–28, 2007.
- 05/08 Co-organizer with G. Dal Maso (Trieste), A. Garroni (Rome), C. Larsen (Worcester) of four-part mini-symposium: *Damage and Fracture Evolution*, SIAM conference on *Mathematical Aspects of Materials Science*, Philadelphia, May 11 – 14, 2008.
- 09/08 Member Scientific Committee IUTAM Conference on *Variational Concepts with Applications to the Mechanics of Materials*, Bochum, Sept. 22–26 , 2008.
- 05/10 Member Organizing Committee SIAM Conference on *Mathematical Aspects of Materials Science*, Philadelphia, May 23 – 26 , 2010.
- 07/14 Co-organizer with M. Kružík (Prague), A. Gloria (Brussels), of Workshop: *Relaxation, Homogenization and Dimensional Reduction in Hyperelasticity*, Paris, March 25 – 27, 2014.
- 08/15 Co-organizer with S. Luckhaus (Leipzig) of Oberwolfach Mini-Workshop: *Scales in Plasticity*, Oberwolfach, Nov. 8 – 14, 2015.
- 01/16 Co-organizer with C. Miehe (Stuttgart) of 15th GAMM-Seminar on Microstructures, Paris, Jan 22 – 23, 2016.
- 05/16 Co-organizer with B. Bourdin (Baton Rouge), C. Larsen (Worcester), C. Maurini (Paris) of BIRS Workshop “Variational Models of Fracture” , Banff, May 9 –13, 2016.
- 05/18 One of 9 co-organizers of Workshop “Vers une vision variationnelle de la mécanique”, Porquerolles, May 31 –June 2, 2018.

Invited Visits outside France

New York University New York	many times since 06/84 (stays ranging from one week to 6 months).
University of Michigan, Ann Arbor	08/84 (1 week); 06/85 (2 weeks); 04/86 (1 week); 12/88 (1 week).
California Institute of Technology, Pasadena	04/86 (1 week); 06/97(1 week); 06/98(2 months); 08/02(6 weeks).
Carnegie Mellon University, Pittsburgh	10/91(1 week); 04/91(1week); 12/94 (1 week); 03/96(1 month); 03/97 (2 weeks); 11/98 (1 week); 01/00 (1 week); 09/00 (1 week) ; 10/01 (3 weeks); 11/02(3 weeks), 11/03(3 weeks), 10/04 (2 weeks), 11/13(1 week), 11/14(1 week).
Mathematical Science Research Institute, Berkeley	01/91 (2 weeks).
University of Minnesota, Minneapolis	04/91 (1 week) ; 03/94 (1week); 06/96 (1 week).
University of Utah, Salt Lake City	04/96 (1 month); 01/05(1 week).
University of California, Los Angeles	07/96 (1 month).
Rice University, Houston	10/95 (1 week).
Università di Napoli, Napoli	12/84 (1 week).
Danmarks Tekniske Højskole, Lyngby	02/86 (1 week).
Universidade de Lisboa, Lisboa	06/86 (1 week).
International Center for Theoretical Physics, Trieste	10/85 (2 weeks); 01/90 (3 weeks).
Heriot-Watt University, Edinburgh	06/86 (1 week); 12/17 (2 days).
Universidad Complutense, Madrid	02/95 (1 week).
Universidad de Chile, Santiago	06/96 (1 month).
Max-Planck Institut fur Mathematik, Leipzig	03/98 (1 week); 05/98 (2 weeks).
Worcester Polytechnic Institute, Worcester	01/00(1 week), 08/01(1 week) ; 11/02(1 week); 11/14(3 days)

Isaac Newton Institute Cambridge	10/99(8 weeks)
Universidad de Sevilla, Sevilla	04/00(1 week)
Università di Roma 1 Roma	12/01(2 weeks); 11/07(1 week)
Università di Roma 2 Roma	12/02(1 week); 02/05(1 week)
S.I.S.S.A. Trieste	01/03(3 weeks); 04/13(2 weeks); 05/15 (1 week)
University of Warwick Coventry	06/03(1 week)
Rutgers University New Brunswick	11/04(1 week)
Scuola Normale Superiore Pisa	10/06(1 month)
Oxford University Oxford	12/06(1 week)
Max Planck Institut Leipzig	04/08(3 days)
University of Bristol Bristol	06/08(1 week)
Università di Brescia Brescia	07/10(3 days)
McGill University Montreal	01/11(3 days)
Cornell University Ithaca	05/11(3 days)
Università di Pavia Pavia	12/11(3 days); 06/12(3 days); 10/16(1 week)
Technische Universität München Munich	07/12(3 days)
Technische Universität Dortmund Dortmund	03/13(3 days)
University North Texas Denton	10/13(4 days)
Stanford University Stanford	02/02 (2 days); 12/15(3 days)
University of Illinois at Urbana-Champaign Champaign	09/15 (3 days)
Purdue University West Lafayette	04/16 (3 days)
Schrödinger Institute Vienna	06/16 (2 weeks)
University of Texas Austin	04/17 (3 days)

Seminars

- 1983 ONERA, Université Nancy 1, Ecole Mines Nancy , Ecole Polytechnique.
- 1984 Ecole Normale Supérieure , Université Paris 6 , Academia Navale de Napoli, Ecole Polytechnique.
- 1985 Université Paris 6, Université de Metz, University of Michigan.
- 1986 Université Paris 6, Université de Chambéry, Danmarks Tekniske Højskole, University of Michigan, Universidade de Lisboa.
- 1988 Université du Languedoc, New Jersey Institute of Technology, University of Michigan, Université Paris 6.
- 1989 Carnegie Mellon University.
- 1990 Université de Toulon, Princeton University, Université Paris 6, Courant Institute.
- 1991 University of Delaware, University of Minnesota(2), Carnegie Mellon University, Courant Institute.
- 1992 Collège de France, Ecole Polytechnique, Université Paris 6, Université Paris-Sud.
- 1993 Carnegie Mellon University, Ecole Polytechnique.
- 1994 Collège de France, Université Paris-Sud, Worcester Polytechnic Institute, University of Minnesota, Carnegie Mellon University, Ecole Normale Supérieure.
- 1995 Universidad Complutense de Madrid, Rice University (colloquium).
- 1996 Université Grenoble(2), Université Paris 6, Carnegie Mellon University, University of Utah, Universidad de Chile.
- 1997 Carnegie Mellon University, Université Paris 6, Oxford University.
- 1998 Université Orléans, Université Paris 6(2) , Université Nice, Max Planck Institut leipzig, Carnegie Mellon University:.
- 1999 Ecole Polytechnique (colloquium).
- 2000 Worcester Polytechnic Institute, Université Paris 6, Universidad de Sevilla, SISSA.
- 2001 Worcester Polytechnic Institute, Université Versailles, Università di Roma 1, Carnegie Mellon University, Université Paris 6.
- 2002 Université Paris 6, Université de Rennes, Ecole Nationale des Ponts et Chaussées, Stanford University, Carnegie Mellon University, Worcester Polytechnic Institute.
- 2003 Courant Institute, Louisiana State University, Carnegie Mellon University, University of Warwick.
- 2004 Courant Institute, Carnegie Mellon University, Université de Grenoble, Rutgers, Technische Universität Kaiserslautern.
- 2005 Ecole Polytechnique, Université Paris 6, University of Utah, University of Maryland.
- 2006 Oxford University, Ecole Polytechnique.
- 2007 Yeshiva University, Temple University, Worcester Polytechnic Institute, New York University, Brown University, University of Pennsylvania.

- 2008 Université Rennes (colloquium), INRIA, Max Planck Institut Leipzig, University of Bristol.
- 2009 Collège de France, Courant Institute, Fédération Francilienne de Mécanique.
- 2011 McGill University, CRS-ISM Colloquium Université de Montréal, GDR Chant, Ecole Polytechnique(2), Cornell University, Courant Institute, Institut des Hautes Études Scientifiques (Séminaire Laurent Schwartz).
- 2012 Université Paris 6, Université de Grenoble, Courant Institute(2), Technische Universität München, Temple University.
- 2013 Technische Universität Dortmund, University of North Texas, Carnegie Mellon University.
- 2014 Courant Institute (colloquium), University of Pittsburgh (colloquium), Worcester Polytechnic Institute.
- 2015 Université Paris 6, Université Libre de Bruxelles, Stanford University (colloquium).
- 2016 Purdue University (colloquium+seminar), University of Connecticut, Università di Pavia.
- 2017 University of Texas at Austin, Heriot-Watt University.
- 2018 Courant Institute.

Communications, lectures during special schools

** : *course*

- 09/83 6ème Congrès français de mécanique, Lyon, France.
- 07/84 International Conference on Numerical Methods for Transient and Coupled Problems, Venezia, Italy.
- 01/85 Symposium on Energy Release Rates and Path Independent Integrals in Defect and Fracture Mechanics, Bad Honnef, Germany.
- 10/85** Workshop on Semi-group Theory, International Center for Theoretical Physics, Trieste, Italy.
- 07/86 Symposium on Non-Classical Continuum Mechanics: Abstract Techniques and Applications, Durham, UK.
- 09/86 IUTAM Symposium on Thermomechanical Coupling in Solids, Paris, France.
- 12/88 SIAM Conference on Random Media, Leesburg, USA.
- 01/90 Workshop on Composite Media and Homogenization Theory, Trieste, Italy.
- 03/90 Mécamat, Evian, France.
- 06/90 Mathematical Problems in Non Linear Elasticity, Oberwolfach, Germany.
- 12/90 Problèmes non linéaires appliqués, Ecole CEA-EDF-INRIA, Clamart, France.
- 01/91 P.D.E. Conference on Homogenization, Berkeley, USA.
- 06/91 First European Conference on Elliptic and Parabolic Problems, Pont-à-Mousson, France.
- 06/92 Topology Design of Structures, Sesimbra, Portugal.
- 06/93 CIRM meeting on Calculus of Variations, Homogenization and Continuum Mechanics, Luminy, France.
- 02/94 North American Conference on Smart Structures and Materials, Orlando, USA.
- 04/94 SIAM Conference on Mathematics of Materials, Pittsburgh, USA.
- 02/95 Eurhomogenization Conference, Madrid, Spain.
- 03/95** Workshop on Shape Optimization, Saint Etienne, France.
- 06/95 Calculus of Variations and Nonlinear Elasticity, Cortona, Italy.
- 06/95 Conference on Dynamics of Microstructures, Hanover, Germany.
- 07/95 Minisymposium on Shape Optimization, ICIAM 95, Hamburg, Germany.
- 07/95** Conference on Optimal Design, Banach Center, Warsaw, Poland.
- 08/95 Conference on Structural Optimization, Salt Lake City, USA.
- 06/96 Workshop on Interface and Thin Films, IMA, Minneapolis, USA.
- 03/97 IUTAM Symposium on Composites/Active Materials, Cairo, Egypt.
- 05/97 Second SIAM Conference on the Mathematical Aspects of Materials Science, Philadelphia, USA.
- 06/97 Workshop: Mathematical Continuum Mechanics, Oberwolfach, Germany.

07/97** School on Shape Optimization, CEMRACS, Orsay, France.

09/97** Summer School on the Mathematics of Materials, CIM, Coimbra, Portugal.

09/97 Multiscale II, Leipzig, Germany.

04/99 GAMM 99, Metz, France.

06/99 CIRM meeting on Shape Optimization, Luminy, France.

10-12/99 Workshop on Mathematical developments in solid mechanics and materials science, Isaac Newton Institute, Cambridge, UK.

07/00** Euroconference on New Mathematical Methods in Continuum Mechanics, Anogia, Greece.

10/00 Symposium on Continuous Damage and Fracture, Cachan, France.

02/01 Workshop on Variational Methods beyond Elasticity, Leipzig, Germany.

06/01 First CSMA-GIMC Workshop on Modern Issues in Modelling and Computation of Damage and Failure, Cefalu, Italy.

07/01** School on Multi-Scale Problems, CEMRACS, Orsay, France.

12/01** School on Multiple Scales, Rome, Italy.

01/03** Course on Brittle Fracture, SISSA, Trieste, Italy.

07/03 CIRM meeting on Shape Optimization, Luminy, France.

08/03 Recent Developments in Modelling Rupture, Foz do Iguacu, Brazil.

09/03 Workshop: P.D.E.'s and Materials, Oberwolfach, Germany.

10/03 Workshop on Homogenization, Orléans, France.

01/04 Third GAMM on Microstructures, Stuttgart, Germany.

06/04 Midnight Sun Homogenization Conference, Narvik, Norway.

08/04 ICTAM04, Warsaw, Poland.

09/04 Variational Methods in Materials Science, Trieste, Italy.

09/04 Homogenization and Shape Optimization, Lisbon, Portugal.

12/04 Workshop: Thermodynamische Materialtheorien, Oberwolfach, Germany.

05/05 Mathematical Modeling in Continuum Mechanics, Alghero, Italy.

05/05 Equations aux dérivées partielles non-linéaires, Tipaza, Algeria.

09/05 Workshop on thin structures, Napoli, Italy.

10/05 Society for Natural Philosophy Meeting, Bari, Italy.

10/05 Workshop on the Calculus of Variations, Pittsburgh, USA.

10/05 AMS Sectional Meeting, Lincoln, USA.

11/05 Miniworkshop: Analysis and Computation of Microstructures in Finite Plasticity, Oberwolfach, Germany.

02/06 Modelling and analysis of phase transitions, Pisa, Italy.

05/06 VIII Congresso SIMAI, Ragusa, Italy.

07/06 SIAM Conference on Analysis of Partial Differential Equations, Boston, USA.

10/06 Workshop on Variational methods in Material Science, Pisa, Italy.

01/07 AMS Annual Meeting, New Orleans, USA.

06/07 Thermomechanical Modeling of Solids, Palaiseau, France.

- 10/07 SES 2007, College Station, USA.
- 11/07 Workshop on Rate-Independence, Homogenization and Multiscaling, Pisa, Italy.
- 02/08** Fracture and Damage : Formation and propagation of singularities in continuum mechanics, Winter School, Institut Henri Poincaré, Paris, France.
- 03/08** Singularities in Mechanics: formation, propagation and microscopic description, Centre Emile Borel, Paris, France.
- 05/08 SIAM Conference on the Mathematical Aspects of Materials Science Philadelphia, USA.
- 06/08 Workshop on Geometric Analysis, Elasticity, and PDE on the 60th Birthday of John Ball, Maxwell Institute and Heriot-Watt University, Edinburgh, UK.
- 09/08 IUTAM Symposium on Progress in the Theory and Numerics of Configurational Mechanics, Erlangen, Germany.
- 06/09** LMS–EPSRC Short Course on the Mathematics of Materials, Oxmos, Oxford University, Oxford, UK.
- 09/09 Homogenization and Optimal Design, Sevilla, Spain.
- 12/09 SIAM Conference on Analysis of PDE's, Miami, USA.
- 01/10 New Developments in Elasticity, the Legacy of Robert Hooke, Oxford, UK.
- 02/10 Motions of Interfaces and Non Linear P.D.E.'s, Tours, France.
- 05/10 SIAM Conference on the Mathematical Aspects of Materials Science Philadelphia, USA.
- 07/10** Variational Models and Methods in Solid and Fluid Mechanics, CISM, Udine, Italy.
- 08/10** Ecole Thématique 2010, GDR Chant: Enjeux de Modélisation et Analyse Liés aux Problèmes de Surfaces Rugueuses et de Défauts, Wolfgang Pauli Institute, Wien, Österreich.
- 08/10 Rate-independent systems: Modeling, Analysis, and Computations, Banff International Research Station Workshop, Banff, Canada.
- 09/10 Stability and Nonlinear Solid Mechanics, Institut Henri Poincaré, Paris, France.
- 07/11** School “Mechanics of Fractures and Second Gradient Theory”, M&Mocs, La Cisterna, Italy.
- 12/11 Workshop: Variational Methods for Evolution, Oberwolfach, Germany.
- 03/12 Workshop: Mechanics of Materials, Oberwolfach, Germany.
- 06/12 Variational Problems with Multiple Scales, Otranto, Italy.
- 07/12 Exotic Structures and Homogenization, Saint-Petersburg, Russia.
- 09/12 Evolution Problems in Damage, Plasticity and Fracture, Udine, Italy.
- 02/13 12th GAMM Seminar on Microstructures, Berlin, Germany.
- 04/13** Evolution Problems for Fracture Mechanics, SISSA, Trieste, Italy.
- 05/13 PACAM XIII, Houston, USA.

- 06/13 SIAM Conference on the Mathematical Aspects of Materials Science Philadelphia, USA.
- 06/13 15ème Rencontres Mathématiques de Rouen, Rouen, France.
- 09/13 International Conference on Nonlinear and Multiscale Partial Differential Equations: Theory, Numerics and Applications, Shanghai, China.
- 09/13 Evolution Problems for Material Defects: Dislocations, Plasticity, and Fracture, Trieste, Italy.
- 11/13** Multi-scale and Multi-field Representations of Condensed Matter Behavior, Pisa, Italy.
- 12/13 Workshop: Material Theory, Oberwolfach, Germany.
- 06/14 International Conference on Length Scale in Solid Mechanics: Mathematical and Physical Aspects, Paris, France.
- 09/14** Analyse Variationnelle et Microstructuration, 3^{ème} école d'été de mécanique, Quiberon, France.
- 12/14 Workshop: Variational Methods for Evolution, Oberwolfach, Germany.
- 01/15 14th GAMM Seminar on Microstructures, Regensburg, Germany.
- 05/15** Variational Methods for Plasticity and Dislocations, SISSA, Trieste, Italy.
- 05/15 PACAM XV, Champaign, USA.
- 12/15 Workshop Calculus of Variations and its Applications on the 65th birthday of Luisa Mascarenhas, Caparica, Portugal.
- 05/16 Workshop New Challenges in the Calculus of Variations in honor of the 60th birthday of Irene Fonseca, Montreal, Canada.
- 06/16 Workshop Advances in the Mathematical Analysis of Material Defects in Elastic Solids, SISSA, Trieste, Italy.
- 06/16 Workshop Entropy methods, dissipative systems, and applications, Schrödinger Institute, Vienna, Austria.
- 01/17 16th GAMM Seminar on Microstructures, Dortmund, Germany.
- 07/17 Workshop on Multiscale Problems and Relaxation in Nonlinear Elasticity, Dresden, Germany.
- 07/17 Workshop: Material Theories, Oberwolfach, Germany.
- 08/17** Free discontinuity problems and applications in fracture, mechanics Research Summer School, Ningbo, China.
- 02/18 Workshop: Variational Methods for Inelastic Solids, Oberwolfach, Germany.
- 05/18 Topics in the Calculus of Variations: Recent Advances and New Trends, Banff International Research Station Workshop, Banff, Canada (*did not give a talk*).
- 06/18 Celebrating Approximate 60s, Shanghai, China.
- 06/18 Free Boundary, Free Discontinuity Problems and Applications, Ningbo, China.
- 08/18 New Trends in the Variational Modeling of Failure Phenomena, Schrödinger Institute Workshop, Vienna, Austria.

List of Publications

1. Homogénéisation et oscillations rapides en thermoélasticité linéaire, C.R.A.S. Paris(1), 295, 1982, 367–370.
2. Conservation laws and material momentum in thermoelasticity, *with A.G. Herrmann*, J. Appl. Mech., 104, 1982, 710-714.
3. Homogénéisation de milieux viscoélastiques linéaires de Kelvin-Voigt, *with D. Leguillon, P. Suquet*, C.R.A.S. Paris(1), 296, 1983, 287-290.
4. Thermodynamique et lois de comportement thermomécanique homogénéisées, *with Q.S. Nguyen, P. Suquet*, C.R.A.S. Paris(2), 296, 1983, 1007-1010.
5. Homogenization and linear thermoelasticity, S.I.A.M. J. Math. Anal., 14(4), 1983, 696-708.
6. Homogenization and fast oscillations in linear thermoelasticity, **in:** Numerical Methods for Transient & Coupled Problems, R. Lewis, E.Hinton, P. Betess, B.Schrefler, eds., Pineridge, Swansea, 1984, 382-393.
7. Homogenization and optimal bounds in linear elasticity, *with F. Murat*, Arch. Rat. Mech. Anal., 94(4), 1986, 307-334.
8. Homogenization and mechanical dissipation in thermoviscoelasticity, *with P. Suquet*, Arch. Rat. Mech. Anal. , 96(3), 1986, 265-293.
9. A contour integral and an energy release rate in thermoelasticity, *with A.G. Herrmann*, Int. J. Sol. Struct., 22(7), 1986, 759-766.
10. Asymptotic thermoelastic behavior of flat plates, *with D. Blanchard*, Quat. Appl. Math., 45(4), 1987, 645-667.
11. Optimal bounds for conduction in two-dimensional, multiphase, polycrystalline Media, *with G.W. Milton*, J. Stat. Phys., 46, 1987, 161-177.
12. Asymptotic transient thermoelastic behavior, **in:** Proceedings of the IUTAM Symposium on Thermomechanical Coupling in Solids, H.D. Bui , Q.S. Nguyen, eds. ,Elsevier, Amsterdam, 1987, 291-304.
13. Study of a doubly non-linear heat equation with no growth assumption on the parabolic term, *with D. Blanchard*, S.I.A.M. J. Math. Anal., 19(5), 1988, 1032-1056.
14. Optimal bounds for conduction in two-dimensional, two phase, anisotropic media, *with F. Murat*, **in:** Proceedings of the Durham Symposium on Non-Classical Continuum Mechanics, R.J. Knops, ed., Cambridge Press, Cambridge, 1987,197-212.
15. Homogenization in thermoelasticity, *with S. Brahim-Otsmane, F. Murat*, **in:** Random Media and Composites, R.V. Kohn, G. W. Milton, eds. , S.I.A.M. Press, Philadelphia, 1989, 13-45.
16. Comportement effectif d'un mélange de matériaux élastiques isotropes ayant le même module de cisaillement, *with L. Tartar*, C.R.A.S. Paris(1), 312, 1991, 301-307.
17. A few results on a class of degenerate parabolic equations, *with D. Blanchard*, Ann. Sc. Norm. Sup. Pisa, 18(2), 1991, 213-249.
18. Mathematical analysis of the damage evolution in a brittle damaging continuous medium, *with J.-J. Marigo*, **in:** Mécanique, modélisation numérique et dynamique des matériaux, Publications du L.M.A., 124, Presses du C.N.R.S., 1991, 245-276.

19. Correctors for the homogenization of the wave and heat equations, *with S. Brahim-Otsmane, F. Murat*, J. Math. Pures et Appl., 71(2), 1992, 197-231.
20. Homogenisation of a class of fourth order equations with application to incompressible elasticity, Proc. Royal Soc. Edinburgh, 120A, 1992, 25-46.
21. Oscillations and energy densities in the wave equation, *with F. Murat*, Comm. Part. Dif. Eq., 17(11&12), 1992, 1785-1865.
22. A numerical algorithm for topology and shape optimization, *with G. Allaire*, **in:** Topology Design of Structures, M. Bendsoe, C. Mota Soares, eds., Kluwer, Dordrecht, 1993, 239-248.
23. Stable damage evolution in a brittle continuous medium, *with J.-J. Marigo*, Eur. J. Mech. A/Solids, 12(2), 1993, 149-189.
24. Combined effects of homogenization and singular perturbations in elasticity, *with S. Muller*, J. reine angew. Math., 454, 1994, 1-35 (featured AMS review).
25. Sets of conductivity and elasticity tensors stable under lamination, *with G.W. Milton*, Comm. Pure Appl. Math., 47, 1994, 1-23.
26. Relaxation in BV versus quasiconvexification in $W^{1,p}$; a model for the interaction between fracture and damage, *with I. Fonseca*, Calc. Variations and PDE, 3(4), 1995, 407-446.
27. Fourth order moments of a nonnegative measure on S^2 and applications, *with F. Murat, L. Tartar*, Arch. Rat. Mech. Anal., 131, 1995, 305-333.
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