Curriculum Vita

Name:	Frederic B. Weissler
e-mail:	weissler@math.univ-paris13.fr
Current position:	Professor Emeritus Université Sorbonne Paris Nord LAGA - Institut Galilée 99 Avenue J.-B. Clément 93430 Villetaneuse France
Home address:	12 Villa Soutine 75014 Paris France
Birthdate and place of birth:	20 April 1949, Washington D.C., U.S.A.
Citizenship:	U.S.A.

University degrees

B.A. (mathematics and physics)	1971, Yale University, New Haven *summa cum laude*, phi beta kappa
M.A. (mathematics)	1974, University of California, Berkeley
Ph.D. (mathematics)	1976, University of California, Berkeley Danforth Foundation graduate fellowship

Main area of mathematical interest:

Nonlinear partial differential equations, semilinear evolution equations.

Equations studied:

- nonlinear heat equation
- nonlinear Schrödinger equation
- nonlinear wave equation
- Korteweg-de Vries and generalized Korteweg-de Vries equations
- complex Ginzburg-Landau equation

Topics studied:

- local well-posedness, especially for highly singular initial values
- finite time blowup of solutions
- long-time asymptotic behavior of global solutions
- self-similar solutions

Professional experience

1976-1978	Postdoctoral Research Fellow and Instructor Department of Mathematics University of Texas, Austin, TX
1978-1981	Assistant Professor Department of Mathematics Brown University, Providence, RI
1981-1986 (on leave: 9/84 to 12/85)	Assistant Professor Department of Mathematics University of Texas, Austin, TX
1984-1985	Research Associate Institute for Mathematics and its Applications University of Minnesota, Minneapolis, MN
Sept.-Dec. 1985	Visiting Assistant Professor Mathematics Research Center University of Wisconsin, Madison, WI
1986-1989 (on leave: 9/87 to 8/89)	Associate Professor Department of Mathematics Texas A&M University, College Station, TX
1987-1989	Professeur Associé (visiting professor) Laboratoire Analyse Numérique Université Pierre et Marie Curie 4, place Jussieu 75252 Paris Cedex 05 France
1989-1990	Professeur Associé (visiting professor) Département de Mathématiques Université de Nantes 2, rue de la Houssinière 44072 Nantes Cedex 03 France
1990-1992	Maître de Conférences Département de Mathématiques UFR de Sciences et Technologie Université Paris XII Val de Marne Avenue du Général De Gaulle 94010 Créteil Cedex France
1992-2015	Professor of Mathematics ("classe exceptionnelle") Université Paris 13, Sorbonne Paris Cité LAGA - Institut Galilée 99 Avenue J.-B. Clément 93430 Villetaneuse France

Distinctions

1. International meeting, "Equations d'évolution non-linéaires", organized on the occasion of my 60th birthday, 30 Mar 2009 - 1 Apr 2009, Insitut Henri Poincaré, Paris.
2. Twenty-nine invited plenary talks at international meetings.
3. Several invited graduate and research level "short courses" of 3 to 6 lectures at foreign universities or meetings (UIC 2018, Tohoku 2016, Hammamet 2012, Tokyo 2003, Hokkaido 2000, Bratislava 1991).
4. More than 100 invited talks at universities (US, France, Brazil, Europe, Tunisia, Japan).

Special area of expertise: Comparison of French and US systems of higher education

1. 11 years experience in faculty and research positions at 5 major US universities.
2. 28 years experience in faculty and research positions at 4 major French universities.
3. Presentation of the French system of higher education, March 11, 2008, Mona Bismarck Foundation, Paris, sponsored by AAWE and AARO.
4. Author (or co-author) of 3 chapters in *Beyond the Bac : Higher Education in France and Abroad*, AAWE, Paris, 2011.
   (i) Introduction to the French Higher Education System, pp. 22-29.
   (ii) University Studies in France, pp. 30-42.
   (iii) (with N. Dardel) Becoming a Doctor in the French System, pp. 69-74.
5. Author (or co-author) of 2 chapters in revised edition *Beyond the Bac : Higher Education in France and Abroad*, AAWE, Paris, 2020.
   (i) Introduction to the French Higher Education System, pp. 24-35.
   (ii) (with H. Shavit) University Studies in France, pp. 36-53.

Invited lectures

Invited plenary talks at international meetings indicated by*.

1976 :	Ohio State University, Columbus
1978 :	Brown University, Providence University of California, Berkeley AMS Summer Institute in Harmonic Analysis, Maine
1979 :	University of California, Berkeley Yale University, New Haven
1980 :	University of Connecticut, Storrs AMS meeting, Providence, Rhode Island
1981 :	Vanderbilt University, Nashville University of Pennsylvania, Philadelphia Rutgers University, New Brunswick Indiana University, Bloomington Michigan State University, East Lansing University of Southern California, Los Angeles University of Wisconsin, Madison
1982 :	University of California, San Diego AMS meeting, Baton Rouge, Louisiana Cornell University, Ithaca Brown University, Providence Northwestern University, Evanston
1983 :	AMS Summer Institute in Nonlinear Functional Analysis, Berkeley, California Courant Institute of Mathematical Sciences, New York
1984 :	Technische Hogeschool, Delft, The Netherlands Ecole Normale Supérieure, Paris University of Paris VI, Paris Institute for Mathematics and its Applications, Minneapolis *Mathematisches Forschungsinstitut Oberwolfach, Germany *International Centre for Theoretical Physics, Trieste, Italy
1985 :	Georgetown University, Washington, D.C. Princeton University Brown University, Providence Iowa State University, Ames Universiy of Minnesota, Minneapolis University of Chicago University of Colorado, Boulder Ecole Normale Supérieure, Paris University of Paris VI, Paris University of Metz, France University of Wisconsin, Madison University of Pittsburgh

1986 : Emory University, Atlanta
Tulane University, New Orleans
University of Tennessee, Knoxville
University of Rochester
University of Paris VI, Paris
University of Metz
*Microprogram on Nonlinear Diffusion Equations and their Equilibrium States, Mathematical Sciences Research Institute, Berkeley, California

1987 : *Workshop on Nonlinear PDE's, Provo, Utah

1988 : University of Paris XI, Orsay, France
University of Heidelberg, Germany
*International meeting : Problèmes Elliptiques et Paraboliques Non Linéaires, Nancy, France
Ecole Polytechnique, Palaiseau, France
*International Conference on Nonlinear Evolution Equations and Their Applications, Visegrád, Hungary
AMS-IMS-SIAM Joint Summer Research Conference on Geometric Problems in Fourier Analysis, Bowdoin College, Brunswick, Maine
University of Delaware, Newark
Ecole Normale Supérieure, Paris

1989 : University of Minnesota, Minneapolis
Universidad Autonoma de Madrid, Spain
*Mathematisches Forschungsinstitut Oberwolfach, Germany
University of Nancy, France
"Journées de Metz", University of Metz, France
*International meeting : Nonlinear Diffusion Equations and their Equilibrium States, Scotland
University of Paris XI, Orsay, France

1990 : University of Bordeaux I, France
University of Leiden, The Netherlands
Pennsylvania State University, University Park

1991 : *Fourth Czecho-Slovak Summer School on Dynamical Systems, Bratislava, Slovakia (series of three lectures)
AMS-IMS-SIAM Joint Summer Research Conference "Systems of Coupled Oscillators", Seattle, Washington
University of Texas, Austin
Pennsylvania State University, University Park
University of Paris XI, Orsay, France

1992 : University of Leiden, The Netherlands
Ecole Normale Supérieure, Paris

1993 : Workshop on Partial Differential Equations in Geometry and Physics : Theory and Numerical Methods, Confédération Européenne des Universités du Rhin Supérieur (EUCOR), Freiburg, Germany
*Mathematisches Forschungsinstitut Oberwolfach, Germany
University of Paris XI, Orsay, France

1994 : ETH, Zürich, Switzerland
University of Metz, France

1995 : University of Orléans, France
*Mathematisches Forschungsinstitut Oberwolfach, Germany

1996 : University of Zürich, Switzerland

1997 : University of Texas, Austin
University of North Texas, Denton (Millican lecture)
University of Maryland, College Park
University of Paris XI, Orsay, France
*Mathematisches Forschungsinstitut Oberwolfach, Germany

1998 : Brown University, Providence, Rhode Island
University of Texas, Austin
University of North Texas, Denton (Millican lecture)
Workshop : Recent progress on nonlinear Schrödinger equations,
University of Paris XI, Orsay, France

1999 : Workshop on nonlinear evolution equations, University of Amiens, France
Workshop on nonlinear evolution equations, University of Versailles Saint-Quentin, France

2000 : *First Northeastern Symposium on Mathematical Analysis, Sapporo, Japan
principal lecturer, series of three lectures.
University of Texas, Austin (2 seminar talks + 1 colloquium talk)
University of Pennsylvania, Philadelphia
University of Maryland, College Park

2001 : University of Marne-la-Vallée, France
*Mathematisches Forschungsinstitut Oberwolfach, Germany
University of Texas, Austin (2 seminar talks)
Texas A&M University, College Station

2002 : *Workshop on Nonlinear Phenomena in Science, Lorentz Center,
Leiden University, The Netherlands
University of Tunis, Tunisia
*Symposium on Partial Differential Equations to celebrate the Seventy-fifth
Birthday of James Serrin, Univerity of Perugia, Italy
University of Illinois at Chicago
University of Paris XI, Orsay, France
CEA, Saclay, France

2003 : University of Tokyo, Japan (1 colloquium talk + a 4-lecture seminar series)

2005 : University of Chicago
University of Illinois at Chicago
Institute for Pure and Applied Mathematics (IMPA), Rio de Janeiro, Brazil
Federal University of Rio de Janeiro (UFRJ), Brazil
University of Campinas (Unicamp), Brazil
*Conference: Infinite dimensional dynamical systems, CIRM, Luminy
*Taiwan-France joint conference on nonlinear partial differential equations
and related topics, Taipei, Taiwan

2006 : *Water Waves : Conference in honor of Jerry Bona, Bordeaux, France
AIMS' sixth international conference on dynamical systems, differential
equations and applications (2 invited special session talks), Poitiers, France
University of Illinois at Chicago
SIAM Conference on nonlinear waves and coherent structures, Seattle WA
University of the Basque Country, Bilbao, Spain

2007 : First Joint International Meeting between the American Mathematical Society and the Polish Mathematical Society, Warsaw, Poland
Equadiff 2007, Vienna, Austria
University of Tours, France
Institute for Pure and Applied Mathematics (IMPA), Rio de Janeiro, Brazil
Federal University of Rio de Janeiro (UFRJ), Brazil

2008 : University of Evry, France
*Equations of fluid dynamics: analysis, numerical methods, simulation; international meeting in honor of Matania Ben Artzi, Paris, France
Ryukoku University, Japan
University of Tokyo, Japan
*Third Euro-Japanese Workshop on Blowup, Sendai, Japan

2009 : * $T = \infty$: Evolution equations and dynamical systems : Conference on the occasion of the 60th birthday of Alain Haraux, Hammamet, Tunisia

2010 : Université de Franche-Comté, Besançon
*International conference on Partial Differential Equations, for the 60th birthday of Michel Chipot, Poitiers, France
*Nonlinear PDE and Boundary Value Problems with Measure Data, Conference on the occasion of Marie-Françoise Bidaut-Véron and Laurent Véron's 60th birthdays, Technion, Israel Institute of Technololy, Haifa, Israel
Hebrew University, Jerusalem, Israel
Brown University, Providence, Rhode Island
University of Illinois at Chicago
Carnegie Mellon University, Pittsburgh
University of Southern California, Los Angeles

2011 : University of Tunis El Manar, Tunisia

2012 : University of Tours, France
University of Cambridge, England
*School and Workshop on Nonlinear Evolution Equations And Applications Cimpa-Unesco-MESR-Micinn-Tunisia (6 hour short course), Hammamet
University of Zürich
*Dynamics of nonlinear dispersive and fluid mechanics equations, CNRS-NSFC joint Sino-French Summer Institute of Mathematics, Beijing
*Fifth Euro-Japanese Workshop on Blow-up, CIRM, Luminy, France

2013 : University of Illinois at Chicago

2014 : University of Tours, France
*International Symposium on Applied Analysis in honour of Professor Michel Chipot Institut für Mathematik, University of Zürich

2016 : *Seventh Euro-Japanese Workshop on Blow-up, Bedlewo, Poland
University of Nagoya, Japan (colloquium lecture)
University of Tokyo, Japan
Tohoku University, Japan (colloquium lecture + 10 hour graduate class)

2017 : University of Lisbon, Portugal

2018 : University of Illinois at Chicago (seminar + 4 hour graduate class)

2019 : University of California, Davis
University of Illinois at Chicago
University of Memphis (colloquium lecture)
*International Conference, Singular Problems, Blow-up, and Regimes with Peaking in Nonlinear PDEs, Moscow

Doctoral students

1. Mr. Slim Tayachi
   Title of thesis: *Solutions autosimilaires d'équations semi-linéaires paraboliques avec terme de gradient non linéaire.*
   Date of thesis defense and granting of diploma: 12 January 1996
   Current status : Professor, University of Tunis, El Manar

2. Ms. Anne Kelfa
   Title of thesis: *Etude des solutions autosimilaires d'une équation d'évolution et propriétés des solutions périodiques d'une équation différentielle.*
   Date of thesis defense and granting of diploma: 17 January 1996
   Current status : "Statisticien informaticien", Banque de France

3. Mr. Tej-eddine Ghoul
   Title of thesis: *Etude de solutions non globales d'équations d'évolution non linéaires.*
   Date of thesis defense and granting of diploma: 5 December 2011
   Current status : Assitant Professor, NYU Abu Dhabi

4. Mr. Byrame Ben Slimene
   Title of thesis: *Comportement asymptotique des solutions globales pour quelques problèmes paraboliques non linéaires singuliers.*
   Thesis in co-direction with the University of Tunis, El Manar
   Co-directer : Professor Slim Tayachi.
   Date of thesis defense and granting of diploma: 13 December 2017
   Current status : Professor, Preparatory Institute of Nabeul, University of Carthage (Tunis)

Administrative, teaching and research responsibilities

1. Head of the research group "Modeling and scientific computation", Laboratoire d'Analyse, Géométrie et Applications, UMR CNRS 7539, University of Paris 13, July 2002 - September 2015.
2. Head of mathematics and statistics teaching in the "U.F.R. de Sciences Economiques et de Gestion" (i.e. College of Economics and Management) at the University of Paris 13, October 1992 - September 2014.
3. Co-organizer of the joint seminar "economy and mathematics", departments of Economics and Mathematics, University of Paris 13, 2008-09.
4. Co-organizer of the international meeting : "Défis actuels de la finance : Nouvelles approches théoriques et gestion des risques bancaires et financiers", University of Paris 13, November 2009.
5. Member of the "conseil du laboratoire", Laboratoire d'Analyse, Géométrie et Applications, UMR CNRS 7539, University of Paris 13, May 1999 - January 2006.
6. Director of the degree program (Maîtrise de Sciences et de Techniques): "Mathematical models in international economics and finance", jointly administered by the U.F.R. de Sciences Economiques et de Gestion and the "Institut Galilée" (i.e. the College of Natural Sciences) at the University of Paris 13, June 1993 - July 2000.
7. Member of the "bureau" (executive committee) of the U.F.R. de Sciences Economiques et de Gestion at the University of Paris 13, May 1993 - July 2000.

Editorial and service activities

1. Member of the editorial board of the *Gazette des Mathématiciens* (analagous to the Notices of the A.M.S.), May 1997 - Oct 1999.
2. Member of the editorial board of the *Nagoya Mathematical Journal*:
   - associate editor, 5/2003 to 3/2008;
   - editor, 3/2008 to 3/2014;
   - associate editor, 3/2014 to 12/2015.
3. Member of an NSF evalutaion panel, 2/2008.
4. Member of the Committee of Visitors of the Division of Mathematical Sciences, NSF, 2/2013.

Research support

- "Prime d'encadrement doctoral et de recherche" (PEDR), salary supplement of approximately 1 1/2 months, attributed for research and direction of doctoral students: awarded for the periods 1991-1995, 1996-2000, 2000-2004, 2004-2008 and 2008-2012.
- "Prime d'excellence scientifique" (PES), new version of the PEDR, awarded for the period 2012-2016.
- Six months "delegation" to CNRS (essentially a half-year full salarly research Sabbatical).
  - 2004-05
  - 2010-11
- Six month Sabbatical leave, fall semester 2011-12.

Publications

Articles in refereed journals:

[1] Logarithmic Sobolev inequalities for the heat-diffusion semigroup, Trans. Amer. Math. Soc. **237** (1978), 255-269.

[2] Construction of non-linear semi-groups using product formulas, Israel J. Math. **29** (1978), 265-275.

[3] Two-point inequalities, the Hermite semigroup, and the Gauss-Weierstrass semigroup, J. Functional Analysis **32** (1979), 102-121.

[4] Semilinear evolution equations in Banach spaces, J. Functional Analysis **32** (1979), 277-296.

[5] Local existence and nonexistence for semilinear parabolic equations in L^p, Indiana Univ. Math. J. **29** (1980), 79-102.

[6] Logarithmic Sobolev inequalities and hypercontractive estimates on the circle, J. Functional Analysis **37** (1980), 218-234.

[7] The Navier-Stokes initial value problem in L^p, Arch. Rational Mech. Anal. **74** (1980), 219-230.

[8] Existence and non-existence of global solutions for a semilinear heat equation, Israel J. Math. **38** (1981), 29-40.

[9] (with A. Haraux) Non-uniqueness for a semilinear initial value problem, Indiana Univ. Math. J. **31** (1982), 167-189.

[10] (with C.E. Mueller) Hypercontractivity for the heat semigroup for ultraspherical polynomials and on the n-sphere, J. Functional Analysis **48** (1982), 252-283.

[11] Single point blow-up for a semilinear initial value problem, J. Differential Equations **55** (1984), 204-224.

[12] An L^∞ blow-up estimate for a nonlinear heat equation, Commun. on Pure and Appl. Math. **38** (1985), 291-295.

[13] (with C.E. Mueller) Single point blow-up for a general semilinear heat equation, Indiana Univ. Math. J. **34** (1985), 881-913.

[14] Asymptotic analysis of an ordinary differential equation and non-uniqueness for a semilinear partial differential equation, Arch. Rational Mech. Anal. **91** (1986), 231-245.

[15] Rapidly decaying solutions of an ordinary differential equation with applications to semilinear elliptic and parabolic partial differential equations, Arch. Rational Mech. Anal. **91** (1986), 247-266.

[16] (with L. A. Peletier and D. Terman) On the equation $\Delta u + (1/2)x \cdot \nabla u + f(u) = 0$, Arch. Rational Mech. Anal. **94** (1986), 83-99.

[17] (with T. Cazenave) The Cauchy problem for the nonlinear Schrödinger equation in H^1, Manuscripta Math. **61** (1988), 477-494.

[18] (with M. Chipot) Some blow-up results for a nonlinear parabolic equation with a gradient term, SIAM Jnl. Math. Anal. **20** (1989), 886-907.

[19] (with T. Cazenave, A. Haraux, and L. Vazquez) Nonlinear effects in the wave equation with a cubic restoring force, Computational Mechanics **5** (1989), 49-72.

[20] (with K. McLeod and W.C. Troy) Radial solutions of $\Delta u + f(u) = 0$ with prescribed numbers of zeroes, J. Differential Equations **83** (1990), 368-378.

[21] (with T. Cazenave) The Cauchy problem for the critical nonlinear Schrödinger equation in H^s, Nonlinear Anal. T.M.A. **14** (1990), 807-836.

[22] (with O. Kavian) Finite energy self-similar solutions of a nonlinear wave equation, Commun. in Part. Diff. Eq. **15** (1990), 1381-1420.

[23] (with T. Cazenave) The structure of solutions to the pseudo-conformally invariant nonlinear Schrödinger equation, Proc. Royal Soc. Edinburgh **117A** (1991), 251-273.

[24] (with T. Cazenave) Rapidly decaying solutions of the nonlinear Schrödinger equation, Comm. Math. Phys. **147** (1992), 75-100.

[25] (with T. Cazenave and A. Haraux) A class of nonlinear completely integrable abstract wave equations, Jnl. Dynam. Diff. Eqns. **5** (1993), 129-154.

[26] (with T. Cazenave and A. Haraux) Detailed asymptotics for a convex Hamiltonian system with two degrees of freedom, Jnl. Dynam. Diff. Eqns. **5** (1993), 155-187.

[27] (with O. Kavian) Self-similar solutions of the pseudo-conformally invariant nonlinear Schrödinger equation, Mich. Math. Jnl. **41** (1994), 151-173.

[28] (with T. Cazenave) Asymptotically periodic solutions for a class of nonlinear coupled oscillators, Portugaliae Math. **52** (1995), 109-123.

[29] Some remarks concerning iterative methods for linear systems, SIAM J. Matrix Anal. and Appl. **16** (1995), 448-461.

[30] (with T. Cazenave) Unstable simple modes of the nonlinear string, Quart. Appl. Math. **LIV** (1996), 287-305.

[31] (with S. Tayachi and Ph. Souplet) Exact self-similar blow-up of solutions of a semilinear parabolic equation with a nonlinear gradient term, Indiana Univ. Math. J. **45** (1996), 655-682.

[32] (with Ph. Souplet) Self-similar subsolutions and blow-up for nonlinear parabolic equations, J. Math. Anal. Appl. **212** (1997), 60-74.

[33] (with J. A. Iaia and H. A. Warchall) Localized solutions of sublinear elliptic equations: loitering at the hilltop, Rocky Mountain J. Math., **27** (1997), 1131-1157.

[34] (with T. Cazenave) Asymptotically self-similar global solutions of the nonlinear Schrödinger and heat equations, Math. Zeit. **228** (1998), 83-120.

[35] (with B. Helffer) On a family of solutions of the second Painlevé equation related to superconducitivity, Euro. J. Appl. Math. **9** (1998), 223-243.

[36] (with T. Cazenave) More self-similar solutions of the nonlinear Schrödinger equation, Nonlin. Diff. Eq. Appl. **5** (1998), 355-365.

[37] (with Ph. Souplet) Poincaré's inequality and global solutions of a nonlinear parabolic equation, Ann. Inst. H. Poincaré - Analyse non Linéaire **16** (1999), 337-373.

[38] (with J. Bona) Similarity solutions of the generalized Korteweg-de Vries equation, Proc. Cam. Phil. Soc. **127** (1999), 323-351.

[39] (with S. Snoussi and S. Tayachi) Asymptotically self-similar global solutions of a semi-linear parabolic equation with a nonlinear gradient term, Proc. Royal Soc. Edinburgh **129A** (1999), 1291-1307.

[40] (with T. Cazenave) Scattering theory and self-similar solutions for the nonlinear Schrödinger equation, SIAM Jnl. Math. Anal. **31** (2000), 625-650.

[41] Asymptotically self-similar solutions of the two-power nonlinear Schrödinger equation, Adv. Diff. Eqns. **6** (2001), 419-440.

[42] (with Ph. Souplet and M. Fila) Linear and nonlinear heat equations in L^q_δ spaces and universal bounds for global solutions, Math. Annalen **320** (2001), 87-113.

[43] (with J. Bona) Blow-up of spatially periodic complex-valued solutions of nonlinear dispersive equations, Indiana Univ. Math. J. **50** (2001), 759-782.

[44] (with S. Snoussi and S. Tayachi) Asymptotically self-similar global solutions of a general nonlinear heat equation, Math. Annalen **321** (2001), 131-155.

[45] (with T. Cazenave, F. Dickstein and M. Escobedo) Self-similar solutions of a nonlinear heat equation, Jnl. Math. Sci. Univ. Tokyo **8** (2001), 501-540.

[46] (with H. A. Warchall) Hidden ground states, Comm. Appl. Anal. **6** (2002), 73-87.

[47] (with M. Ben-Artzi and Ph. Souplet) The local theory for viscous Hamilton-Jacobi equations in Lebesgue spaces, Jnl. Maths. Pures Appl. **81** (2002), 343-387.

[48] (with Ph. Souplet) Regular self-similar solutions of the nonlinear heat equation with initial data above the singular steady state, Ann. Inst. H. Poincaré - Analyse non Linéaire **20** (2003), 213-235.

[49] (with T. Cazenave and F. Dickstein) Universal solutions of the heat equation on $\mathbb{R}^N$, Discrete and Cont. Dyn. Sys. **9** (2003), 1105-1132.

[50] (with T. Cazenave and F. Dickstein) Universal solutions of the nonlinear heat equation on $\mathbb{R}^N$, Ann. Scuola Norm. Sup. Pisa Cl. Sci. (5), Vol. **2**, Fasc. 1 (2003), 77-117.

[51] (with T. Cazenave and F. Dickstein) Chaotic behavior of solutions of the Navier-Stokes system in $\mathbb{R}^N$, Adv. Diff. Eqns. **10** (2005), 361-398.

[52] (with T. Cazenave) Spatial decay and time-asymptotic profiles for solutions of Schrödinger equations, Indiana Univ. Math. J. **55** (2006), 75-118.

[53] (with T. Cazenave and F. Dickstein) A solution of the constant coefficient heat equation on $\mathbb{R}$ with exceptional asymptotic properties: an explicit construction, Jnl. Maths. Pures Appl. **85** (2006), 119-150.

[54] (with T. Cazenave and F. Dickstein) Non-parabolic asymptotic limits of solutions of the heat equation on $\mathbb{R}^N$, Jnl. Dynam. Diff. Eqns. **19** (2007), 789-818.

[55] (with T. Cazenave and F. Dickstein) An equation whose Fujita critical exponent is not given by scaling, Nonlinear Anal. T.M.A. **68** (2008), 862-874.

[56] (with T. Cazenave and F. Dickstein) Sign-changing stationary solutions and blow up for the nonlinear heat equation in a ball, Math. Annalen. **344** (2009) 431-449.

[57] (with J. Bona) Pole dynamics of interacting solitons and blow up of complex valued solutions to KdV, Nonlinearity **22** (2009) 311-349.

[58] (with T. Cazenave and F. Dickstein) Global existence and blow up for sign-changing solutions of the nonlinear heat equation, J. Differential Equations **246** (2009) 2669-2680.

[59] (with T. Cazenave and F. Dickstein) On the structure of global solutions of the nonlinear heat equation in a ball, J. Math. Anal. Appl. **360** (2009), 537-547.

[60] (with F. Dickstein, N. Mizoguchi and Ph. Souplet) Transversality of stable and Nehari manifolds for a semilinear heat equation, Calculus of Variations and Partial Differential Equations, DOI 10.1007/s00526-011-0397-8, **42** (2011), 547-562.

[61] (with T. Cazenave and F. Dickstein) Spectral properties of stationary solutions of the nonlinear heat equation, Publi. Mat. **55** (2011), 185-200.

[62] (with J. Bona) Traveling fronts of a conservation law with hyper-dissipation, Adv. Diff. Eqns. **16** (2011), 917-935.

[63] (with T. Cazenave and F. Dickstein) Multi-scale multi-profile solutions of evolution equations, Discrete and Cont. Dyn. Sys. Series S. **5** (2012), 449-472.

[64] (with J. Bona and S. Vento) Singularity formation and blowup of complex-valued solutions of the modified KdV equation, Discrete and Cont. Dyn. Sys., **33** (2013), 4811-4840.

[65] (with T. Cazenave and F. Dickstein) Finite time blowup for a complex Ginzburg-Landau equation, SIAM J. Math. Anal., **45** (2013), 244-266.

[66] (with S. Tayachi) The nonlinear heat equation with high order mixed derivatives of the Dirac delta as initial value, Trans. AMS, **366** (2014), 505-530.

[67] (with T. Cazenave and F. Dickstein) Standing waves of the complex Ginzburg-Landau equation, Nonlinear Anal. T.M.A. **103** (2014), 26-32.

[68] (with T. Cazenave, S. Correia and F. Dickstein) A Fujita-type blowup result and low energy scattering for a nonlinear Schrödinger equation, São Paulo J. Math. Sci. **9** (2015), 146-161. DOI 10.1007/s40863-015-0020-6.

[69] (with H. Mouajria and S. Tayachi) The heat semigroup on sectorial domains, highly singular initial values, and applications, J. Evol. Equ. **16** (2016), 341-364. DOI 10.1007/s00028-015-0305-3.

[70] (with T. Cazenave and F. Dickstein) Non-regularity in Hölder and Sobolev spaces of solutions to the semilinear heat and Schrödinger equations, Nagoya Math. J., **226** (2017), 44-70. DOI 10.1017/nmj.2016.35.

[71] (with B. Ben Slimene and S. Tayachi) Well-posedness, global existence and large time behavior for Hardy-Hénon parabolic equations, Nonlinear Analysis T.M.A. **152** (2017), 116-148. DOI 10.1016/j.na.2016.12.008.

[72] (with S. Tayachi) The nonlinear heat equation involving highly singular initial values and new blowup and life span results, J Elliptic Parabol Equ **4** (2018), 141-176. DOI 10.1007/s41808-018-0014-5.

[73] (with T. Cazenave, F. Dickstein and I. Naumkin) Perturbations of self-similar solutions, Dyn. Partial Differ. Equ. **16** (2019), 151-183.

[74] (with H. Mouajria and S. Tayachi) Large time behavior of solutions to the nonlinear heat equation with absorption with highly singular antisymmetric initial values, Adv. Nonlinear Stud. **20(2)** (2020), 311-337.

[75] (with T. Cazenave, F. Dickstein and I. Naumkin) Sign-changing self-similar solutions of the nonlinear heat equation with positive initial value, Amer. J. Math. **142** (2020), 1439-1495.

[76] (with T. Cazenave, F. Dickstein and I. Naumkin) Sign-changing solutions of the nonlinear heat equation with persistent singularities, ESAIM: Control, Optimisation and Calculus of Variations **26** (2020), 126. https://doi.org/10.1051/cocv/2020082

[77] (with J. Bona) Blowup and ill-posedness for the complex, periodic KdV equation, Comm. Cont. Math., https://doi.org/10.1142/S0219199722500444

Articles submitted for publication in refereed journals:

[78] (with S. Tayachi) New life-span results for the nonlinear heat equation.

Articles in preparation :

[79] (with L. Molinet and S. Vento) Self-similar solutions for the generalized Benjamin-Ono equation.

*Articles in conference proceedings, etc. (5 of which contain results not published elsewhere, indicated by *):*

i. Polynomial perturbations to the Laplacian in L^p, *Nonlinear Equations in Abstract Spaces*, V. Lakshmikantham (ed.), Academic Press, New York, 1978, 479-483.

ii. Hypercontractive estimates for semigroups, *Proceedings of Symposia in Pure Mathematics*, Vol. 35, Part 1, Amer. Math Soc., Providence, 1979, 159-162.

iii. (with A. Haraux) Non-unicité pour un problème de Cauchy semi-linéaire, *Nonlinear Partial Differential Equations and their Applications, Collège de France Seminar*, Vol. III, H. Brezis and J. L. Lions (eds.), Pitman, Boston, 1982, 220-233.

*iv. L^p-energy and blow-up for a semilinear heat equation, *Proceedings of Symposia in Pure Mathematics*, Vol. 45, Part 2, Amer. Math Soc., Providence, 1986, 545-551.

v. (with M. Chipot) On the elliptic problem $\Delta u - |\nabla u|^q + \lambda u^p = 0$, *Nonlinear Diffusion Equations and Their Equilibrium States*, Volume I, Proceedings from a Conference Held August 25-September 12, 1986, W.-M. Ni, L.A. Peletier, J.B. Serrin (eds.), Springer, New York, 1988, 237-243.

vi. (with T. Cazenave) Some remarks on the nonlinear Schrödinger equation in the subcritical case, *New Methods and Results in Non-linear Field Equations: Proceedings of a Conference held at the University of Bielefeld, FRG, 7-10 July 1987*, Ph. Blanchard, J.-P. Dias, and J. Stubbe (eds.), Lecture Notes in Physics 347, Springer, New York, 1989, 59-69.

vii. (with T. Cazenave) Some remarks on the nonlinear Schrödinger equation in the critical case, *Nonlinear Semigroups, Partial Differential Equations, and Attractors: Proceedings of a Symposium held in Washington, D.C., August 3-7, 1987*, T.L. Gill and W.W. Zachary (eds.), Lecture Notes in Mathematics 1394, Springer, New York, 1989, 18-29.

viii. (with T. Cazenave and A. Haraux) Une équation des ondes complètement intégrable avec non-linéarité homogène de degré trois, C. Rend. Acad. Sci. Paris 313 (1991), 237-241.

*ix. (with L. Alfonsi) Blow up in $\mathbb{R}^n$ for a parabolic equation with a damping nonlinear gradient term, *Nonlinear Diffusion Equations and their Equilibrium States*, Volume 3, N.G. Lloyd et al. (eds.), Birkhäuser, Boston, 1992, 1-20.

x. (with T. Cazenave and A. Haraux) Global behavior for some conservative nonlinear wave equations, Proceedings IIIe Workshop on Partial Differential Equations, Rio de Janeiro, Brazil, July 1993, Mat. Contemp. 8 (1995), 89-106.

xi. (with Ph. Souplet) Self-similar subsolutions and blow-up for nonlinear parabolic equations, Proceedings of World Congress of Nonlinear Analysis, Athens, July 96, Nonlinear Anal. T.M.A. 30 (1997), 4637-4641.

xii. (with T. Cazenave) Self-similar solutions of the nonlinear Schrödinger equation, Proceedings of "II Jornada de Equacoes Diferenciais Parciais e Análise Numérica", Rio de Janeiro, Brazil, Sept. 1996.

xiii. (with T. Cazenave) Solutions self-similaires de l'équation de Schrödinger non linéaire, Proceedings of the "Partial Differential Equations Meeting", Saint Jean de Monts, France, June 1997.

xiv. (with M. Ben-Artzi and Ph. Souplet) Sur la non-existence et la non-unicité des solutions du problème de Cauchy pour une équation parabolique semi-linéaire, C. Rend. Acad. Sci. Paris 329 (1999), 371-376.

*xv. (with T. Cazenave and F. Dickstein) A solution of the heat equation with a continuum of decay rates., *Elliptic and Parabolic Problems: a special tribute to Haim Brezis*, Progress in

Nonlinear Differential Equations and their Applications, Vol. 63, C. Bandle and H. Berestycki (eds.) Birkhäuser, Basel, 2005, 135-138.

*xvi. (with T. Cazenave and F. Dickstein) Multiscale asymptotic behavior of a solution of the heat equation on $\mathbb{R}^N$, *Contributions to Nonlinear Analysis: a tribute to D.G. de Figueiredo on the occasion of his 70th birthday*, Progress in Nonlinear Differential Equations and their Applications, Vol. 66, Birkhäuser, Basel, 2005, 185-194.

*xvii (with T. Cazenave and F. Dickstein) Structural properties of the set of global solutions of the nonlinear heat equation, Gakuto International Series : Mathematical Sciences and Applications, Vol. 32 (2010), *Current Advances in Applied Nonlinear Analysis and Related Topics*, 13-23.

Pedagogical articles :

Le programme d'un cours de mathématiques appliquées dans un institut universitaire professionnalisé, Gaz. Math., SMF, **75** (1998), 42-50.

Other publications :

- Three chapters in *Beyond the Bac : Higher Education in France and Abroad*, AAWE, Paris, 2011.
  (i) Introduction to the French Higher Education System, pp. 22-29.
  (ii) University Studies in France, pp. 30-42.
  (iii) (with N. Dardel) Becoming a Doctor in the French System, pp. 69-74.
- Two chapters in revised edition *Beyond the Bac : Higher Education in France and Abroad*, AAWE, Paris, 2020.
  (i) Introduction to the French Higher Education System, pp. 24-35.
  (ii) (with H. Shavit) University Studies in France, pp. 36-53.

Career totals:

- 77 articles published in or accepted by refereed journals
- 1 article submitted to refereed journals
- 1 article in preparation
- 17 articles appeared in conference proceedings, etc. (5 of which contain results not published elsewhere)
- 3134 Citations (MathSciNet) by 1663 authors (November 2020), including 1 article with more than 400 citations and a total of 5 articles with more than 100 citations each.