

Curriculum Vitae

Mohammed Aassila

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Personal Info

Date and place of birth : August 31st, 1968 in Sefrou (Morocco).

Marital status : married, one children (2002).

Citizenship : French.

Education

- **Engineering diploma in Computer Science**, University of Strasbourg (France). *Obtained with the highest distinctions. Rank : 2*
- **PhD in Mathematics**, University of Strasbourg (France). Obtained with the highest distinctions : **très honorable avec félicitations du jury**. « Very Honorable, with Committee Praise » is the highest academic distinction awarded for doctorates in the French academic university system. The *félicitations du jury* are an exceptional distinction, requiring a positive secret vote by the Committee and a special memo to be written by the Committee Chairperson to justify this honor. Thesis Title : **Contributions to the stabilization of distributed systems**.
- **M.Sc. in Mathematics**, University of Tours (France). *Obtained with the highest distinctions. Rank : 1*. Thesis title : convergence in gradient-like systems with applications to PDE.
- **B.Sc. in Mathematics**, University of Tours (France). *Obtained with the highest distinctions. Rank : 1*
- **Agrégation de Mathématiques**, French advanced teaching qualification exam. **Rank : 30** among all of 1559 Master students in France.

Employment and positions held

2003–xxxx : **Professor of Mathematics**, Academy of Strasbourg (France).

2002–2003 : **Assistant Professor of Mathematics**, University of Fribourg (Switzerland).

2000–2002 : **Alexander von Humboldt Fellow**, University of Cologne (Germany).

1998–1999 : **Post-Doctoral researcher at the CRM**, University of Montreal (Canada)..

1996–1998 : **Assistant Professor of Mathematics**, University of Strasbourg (France).

1993-1995 : **Instructor**, University of Tours (France).

Research interests

- Nonlinear evolution equations : global existence, asymptotic behavior.
- Exact Controllability and Stabilization.
- Dynamical systems.
- Numerical analysis.
- Mathematics competitions.

Publications (articles)

[1] M. Aassila, Decay estimates for a strongly damped nonlinear wave equation, **C. R. Math. Rep. Acad. Sci. Canada** 18 (1996), 269-272.

[2] M. Aassila, Nouvelle approche à la stabilisation forte des systèmes distribués, **C. R. Acad. Sci. Paris Sér. I Math.** 324 (1997), 43-48.

[3] M. Aassila, Arbitrary exponential decay of energy for a class of bilinear control problems, **Extracta Mathematicae** 12 (1997), 273-276.

[4] M. Aassila, Strong asymptotic stability of isotropic elasticity systems with internal damping, **Acta Sci. Math. Szeged** 64 (1998), 103-108.

[5] M. Aassila, On a quasilinear wave equation with strong damping, **Funkcialaj**

Ekvacioj 41 (1998), 67-78.

[6] M. Aassila, Decay estimates for a quasilinear wave equation of Kirchhoff type, **Advances in Math. Sciences and Applications** 9 (1999), 371 -381.

[7] M. Aassila and A. Guesmia, Strong asymptotic stability of a nonlinear nonisotropic elastodynamic system, **PanAmerican Math. Journal** 8 (1998), 103-110.

[8] M. Aassila, Comportement asymptotique des solutions d'un système conservatif associé à une équation non linéaire singulière de Schrödinger, **Bull. of the Belgian Math. Society** 5 (1998), 675-686.

[9] M. Aassila, A new approach of strong stabilization of distributed systems, **Differential and Integral Equations** 11 (1998), 369-376.

[10] M. Aassila, Global existence and energy decay for a damped quasilinear wave equation, **Mathematical Methods in the Applied Sciences** 21 (1998), 1185-1194.

[11] M. Aassila, Strong asymptotic stability for n -dimensional thermoelasticity systems, **Colloquium Mathematicum** 77 (1998), 13-139.

[12] M. Aassila, Decay estimates for the wave equation with a nonlinear non monotone weak damping, **Applicable Analysis** 69 (1998), 223-231.

[13] M. Aassila and A. Guesmia, Energy decay for a damped nonlinear hyperbolic equation, **Applied Mathematics Letters** 12 (1999), 49-52.

[14] M. Aassila, Uniform boundary stabilization of a thermoelastic bar with a nonlinear weak dissipation, **Colloquium Mathematicum** 79 (1999), 63-70

[15] M. Aassila, Nonlinear boundary stabilization of isotropic elasticity systems, **Sci. Univ. of Tokyo J. of Math.** 34 (1998), 1-11.

[16] M. Aassila, A note on the boundary stabilization of a compactly coupled system of wave equations, **Applied Mathematics Letters** 12 (1999), 19-24.

[17] M. Aassila, Decay properties for a quasilinear equation with damping and source terms, **Afrika Matematika** 9 (1998), 41-45.

[18] M. Aassila, On a quasilinear hyperbolic equation with nonlinear damping, **J. of the Egyptian Math. Society** 7 (1999), 177-189.

[19] M. Aassila, Asymptotic stability and decay rate of solutions for a nonlinear wave equation with variable coefficients, **Korean J. of Computational and Applied Mathematics** 6 (1999), 185-195.

[20] M. Aassila, Some remarks on a second order evolution equation, **Electronic J. of Differential Equations** 18 (1998), 1-6.

[21] M. Aassila, Uniform stabilization of solutions to a quasilinear wave equation with damping and source terms, **Comm. Math. Univ. Carolinae** 40 (1999), 223-226.

[22] M. Aassila, Asymptotic behavior of solutions to a quasilinear hyperbolic equation

with nonlinear damping, **Electronic Journal of Qualitative Theory of Differential Equations** 7 (1998), 1-12.

[23] M. Aassila, Nonlinear boundary stabilization of an inhomogeneous and anisotropic thermoelasticity system, **Applied Mathematics Letters** 13 (2000), 71-76.

[24] M. Aassila, Global existence and decay properties of solutions to degenerate wave equations with dissipative terms, **Bulletin of the Australian Math. Society** 60 (1999), 1-10.

[25] M. Aassila, Asymptotic behavior and stability assessment of marine risers, **Mathematical Methods in the Applied Sciences** 22 (1999), 1585- 1598.

[26] M. Aassila, M. M. Cavalcanti and J. A. Soriano, Asymptotic stability and energy decay rates for solutions of the wave equation with memory in a star-shaped domain, **SIAM J. Control and Optimization** 38 (2000), 1581-1602.

[27] M. Aassila, Exact boundary controllability of the plate equation, **Differential and Integral Equations** 13 (2000), 1413-1428.

[28] M. Aassila and D. Kaya, On local solutions of a mildly degenerate hyperbolic equation, **Journal of Mathematical Analysis and Applications** 238 (1999), 418-428.

[29] M. Aassila, Exact boundary controllability of a coupled system, **Discrete and Continuous Dynamical Systems** 6 (2000), 665-672.

[30] M. Aassila and M. Cavalcanti, On nonlinear hyperbolic problems with nonlinear boundary feedback, **Bulletin of the Belgian Math. Society** 7 (2000), 521-540.

[31] M. Aassila, Strong asymptotic stability of a compactly coupled system of wave equations, **Applied Mathematics Letters** 14 (2001), 285-290.

[32] M. Aassila, Stability of dynamic models of suspension bridges, **Mathematische Nachrichten** 235 (2002), 5-15.

[33] M. Aassila, Global existence of solutions to a wave equation with damping and source terms, **Differential and Integral Equations** 14 (2001), 1301-1314.

[34] M. Aassila, On energy decay-nondecay problems for the wave equations with dissipation and source terms, **Communications on Applied Nonlinear Analysis** 9 (2002), 19-32.

[35] M. Aassila, A dynamical approach for the stability of second order dissipative systems, **Differential and Integral Equations** 15 (2002), 463-475.

[36] M. Aassila, Some blow-up results for a generalized Ginzburg-Landau equation, **Z. Angew. Math. Phys.** 53 (2002), 1-11.

[37] M. Aassila, M. M. Cavalcanti and V. N. Domingos Cavalcanti, Existence and uniform decay of the wave equation with nonlinear boundary damping and boundary memory source term, **Calculus of Variations and Partial Differential Equations** 15 (2002), 155-180.

- [38] M. Aassila, Stabilization of a nonlinear Timoshenko beam, **Z. Angew. Math. Phys.** 53 (2002), 747-768.
- [39] M. Aassila, Contrôlabilité exacte d'un problème de transmission, **C. R. Acad. Sci. Paris Sér. I Math.** 332 (2001), 163-166.
- [40] M. Aassila and A. Benaïssa, Existence globale et comportement asymptotique des solutions des équations de Kirchhoff moyennement dégénérées avec un terme non-linéaire dissipatif, **Funkcialaj Ekvacioj** 44 (2001), 309-333.
- [41] M. Aassila, Nonexistence of global solutions of an hyperbolic problem, **Mathematical and Computer Modelling** 34 (2001), 761-769.
- [42] M. Aassila, Global existence and decay of solutions for a nonlinear evolution equation of second order, **Communications on Applied Nonlinear Analysis** 9 (2002), 87-97.
- [43] M. Aassila, Calcul pseudo-différentiel et équations d'évolution sur les variétés compactes, **C. R. Acad. Sci. Paris Sér. I Math.** 333 (2001), 617-622.
- [44] M. Aassila, Some results on Heronian triangles, **Elemente der Mathematik** 56 (2001) 143-146.
- [45] M. Aassila, Asymptotic behavior of solutions to the wave equation with a nonlinear dissipative term in \mathbb{R}^n , **Rendiconti del Circolo Matematico di Palermo** 51 (2002), 207-212.
- [46] M. Aassila, On a variational inequality for the nonhomogeneous degenerated Kirchhoff equation with a blowing up term, **Applied Mathematics and Computation** 137 (2003), 1-14.
- [47] M. Aassila, Stability of solutions to the Burgers equation, **Asymptotic Analysis** 30 (2002), 131-160.
- [48] M. Aassila, On energy decay rate for linear damped systems, **Discrete and Continuous Dynamical Systems** 8 (2002), 851-864.
- [49] M. Aassila, Global existence for a vector-valued nonlinear heat equation, **Nonlinear Analysis, T.M.A** 53 (2003), 619-636.
- [50] M. Aassila, The influence of nonlocal nonlinearities on the long time behavior of solutions of diffusion problems, **Journal of Differential Equations** 192 (2003), 47-69.
- [51] M. Aassila, Global existence and global nonexistence of solutions to a wave equation with nonlinear damping and source terms, **Asymptotic Analysis** 30 (2002), 301-311.
- [52] M. Aassila, Large time behaviour of solutions for a nonlinear thermoelastic system, **Journal of Computational Mathematics and Applications** 146 (2002), 481-491.
- [53] M. Aassila, Non existence de solutions globales de certaines équations d'ondes

non linéaires, **C. R. Acad. Sci. Paris Sér. I Math** 334 (2002), 961-966.

[54] M. Aassila, Dynamics of solutions to a damped wave equation in \mathbb{R}^N , **Mathematical Sciences Research Journal** 6 (2002), 307-320.

[55] M. Aassila, Exact controllability of the Schrödinger equation, **Applied Mathematics and Computation** 144 (2003), 89-106.

[56] M. Aassila, Decay of solutions of some nonlinear equations, **Portugaliae Math.** 60 (2003), 389-409.

[57] M. Aassila and D. Kaya, An application for a generalized KdV equation by the decomposition method, **Physics Letters A** 299 (2002), 201-206.

[58] M. Aassila, Mean ergodic theorems and applications to the stability of hyperbolic PDEs, **Mathematical Sciences Research Journal** 6 (2002), 321-332.

[59] M. Aassila, Stabilization of the Korteweg-de Vries-Burgers equation with non-periodic boundary feedbacks, **Journal of Applied Mathematics and Computation** 11 (2003), 81-108.

[60] M. Aassila and A. Benaïssa, Global existence of solutions to a quasilinear wave equation with a general nonlinear damping term, **Electronic Journal of Differential Equations** 91 (2002), 1-22.

[61] M. Aassila, Stability and asymptotic behavior of solutions of the heat equation, **IMA Journal of Applied Mathematics** 69 (2004), 93-109.

[62] M. Aassila, Invariant measures of homeomorphisms and applications to the stability of an hyperbolic PDE, **Bulletin of the Brazilian Math. Society** 35 (2004), 83-122.

[63] M. Aassila and M. Dinca, Some applications of the Wolstenholme inequality, **MathProblems Journal** 4 (2013), 222-225.

[64] M. Aassila and M. Dinca, A simple proof and a refinement of Hua's inequality, **Octagon Math. Journal** 22 (2014), 54-58.

Publications (Books)

- M. Aassila, *300 Défis Mathématiques*, Ellipses, Paris, 2001.
- M. Aassila, *Olympiades Internationales de Mathématiques 1998-2002*, Ellipses, Paris, 2003.
- M. Aassila, *350 exercices corrigés d'analyse avec rappels de cours pour sup*, Ellipses, Paris, 2013.

- M. Aassila, *400 exercices corrigés d'algèbre avec rappels de cours pour sup*, Ellipses, Paris, 2013.
- M. Aassila, *400 Exercices corrigés d'analyse pour Spé MP-MP**, Ellipses, Paris, 2014.
- M. Aassila, *400 Exercices corrigés d'algèbre pour Spé MP-MP**, Ellipses, Paris, 2014.
- M. Aassila, *1000 challenges mathématiques*, in preparation.
- M. Aassila, *1000 défis mathématiques*, in preparation.

Publications (others)

Over 350 contributions to various problem-solving oriented journals, including : **Quadrature** (France), **Bulletin de l'APMEP** (France), **Crux Mathematicorum** (Canada), **Samasya** (India), **Revue de Mathématiques Spéciales** (France), **Mathematical Excalibur** (Hong Kong), **Mathematics Magazine** (United States of America), **American Mathematical Monthly** (United States of America), **MathProblems Journal**.

Seminar and colloquium talks

I gave several seminar and colloquium talks at almost all the French Universities : Paris, Strasbourg, Nancy, Metz, Besançon, Amiens, Compiègne, Reims, Rouen, Bordeaux, La Rochelle, Pau, Toulouse, Marseille, Toulon, Montpellier, Rennes,....etc, and also abroad : United States, Switzerland, Spain, Portugal, Italy, Canada, Brazil, Turkey, Bulgaria, Belgium ...etc.

Stays in research institutes abroad

- Universidad Complutense de Madrid (Spain), February 1998.
- Invited speaker in the *Eleventh International Colloquium on Differential Equations*, Plovdiv (Bulgaria), August 2000.
- Invited speaker in the *Third World Congress of Nonlinear Analysts (WCNA-2000)*, Catania (Italy), July 2000.
- Invited speaker in the *Ninth International Congress on Computational and Applied Mathematics*, Katholieke Universiteit Leuven (Belgium), July, 2001.
- Invited speaker to the *2nd European - Maghreb Workshop on Semigroup Theory, Evolution Equations and Applications*, L'Aquila (Italy), June 2000.
- University of Lisbon (Portugal), February 2001.

Editorial duties

- Referee for : **Math. Annalen, Discrete and Continuous Dynamical Systems, Applied Mathematics Letters, Journal of Mathematical Analysis and Applications, Physic Letters, Journal of Applied Mathematics, Journal of Complex Systems, Abstract and Applied Analysis, Journal of Function Spaces and Applications, Boundary Value Problems.**
- Reviewer for : **Mathematical Reviews.**
- Reviewer for the **MAA Problem book Series.** Mathematical Association of America.
- Assistant to the Editor-in-Chief of **Crux Mathematicorum with Mathematical Mayhem**, the Problem Solving Journal of the Canadian Mathematical Society. (1998-2009)
- Editor of **MathProblems Journal** (2013-xxxx).

Computer knowledge

- Windows, Linux, Unix.
- C/C++, Java, HTML.
- SQL
- TeX, LaTeX, AMS-TeX.
- Maple, Matlab.

Teaching experience

Since 1994, I have constantly been involved in teaching, and have always enjoyed the support and appreciation of my students.

At the University of Tours (France) I taught various courses at the first and second year levels : Probability, Combinatorics, Classical Analysis, Ordinary Differential Equations and Linear Algebra. I continued teaching at the Universities of Strasbourg (France) and Fribourg (Switzerland), up to the Master level. Among the course I taught were Differential Calculus, Measure Theory and Integration, Classical Analysis, Algebra, probability, Calculus,...etc.

I feel quite comfortable with courses similar to all of the above as well as course such as Partial Differential Equations, Control Theory, Optimization.

I have always been interested in creating original problems and/or solutions based on subtle ideas, yet easy to formulate and understand. New problems are always needed if we want

to check and compare the creative abilities of the students. I have made over than 350 contributions to various journals concerned with problem-solving and mathematical education and competitions. Most of these contributions are original competition problems and solutions published mainly in France (Quadrature, Bulletin de l'APMEP, Revue de Mathématiques Spéciales), Canada (Crux Mathematicorum with Mathematical Mayhem), India (Samasya), Hong Kong (Mathematical Excalibur), United States of America (Mathematics Magazine, American Mathematical Monthly).

My teaching philosophy is simple. I have always been quite sensitive to anything less than excellent teaching. I knew what I needed as a student and I knew what my fellow students needed. Later on when I got the opportunity to teach I tried to give my students all they needed to quickly understand the material and advance on their own through the joy of mastering the problems and through the satisfaction which comes with new knowledge of the general concepts behind particular (or practical) examples. I have always believed that it does not matter whether a student likes mathematics or not, nor whether the student is good at it or not; he or she can always learn to do mathematics reasonably well and then it becomes enjoyable.

There are always students who are ahead with the material and/or students who can think faster than the others. These students could be lost if we do not supply extra challenging problems or concepts. On the other hand, there are students who lack some prerequisites and we can lose them if the presentation is not clear enough or/and if there are not enough simple examples and references to previous knowledge. Balancing between these two extremes is very delicate, so my teaching is quite flexible. I can easily adapt not only to the different needs of the students, but also to the requirements of the program and the department. However, several features are always present in my lectures : well-organized, well-written and lucid presentation of the mathematics with a lot of references to previous knowledge and easy to follow examples; stress on the applications and the general concepts behind the material; at least one challenging (or open) question for the best students.

In all of my communications with students I show my respect and willingness to help. I am friendly in class and office hours although I expect the students to be serious about their studies. I am very patient with my students even though I make it clear that they put in effort on their own.

I believe that my board experience in teaching is a good prerequisite for a successful career related to mathematical education at any level.