

CURRICULUM VITAE

TIBA DAN

Born: 17.10.1953

e-mail: dan.tiba@imar.ro

Citizenship: Romanian

Studies

Faculty of Mathematics, University of Iasi, Romania (1972-1977)

Ph.D. in Mathematics, University of Iasi (1982)

"Optimality Criteria for Convex Control Problems"

(Ph.D. advisor: Acad. V. Barbu)

Postdoctoral stage, INRIA, Paris (1991)

Languages

English, French, German

Research interests

- abstract optimization problems
- optimal control problems governed by partial differential equations (existence, optimality conditions)
- optimal control problems governed by variational inequalities
- shape optimization problems (domains with the segment property)
- applications to linear elasticity theory
- refinements of the variational method for partial differential equations
- numerical approximation of optimization problems: convergence analysis, error estimates
- implicit representations of domains

Awards and honours

"G. Titeica" prize for mathematics of the Romanian Academy, Romania (1984)

Humboldt Fellow, Germany (1993, 1997, 2000)

Docent of the University of Jyvaskyla, Finland (1995)

Centennial Jubilee Medal "Gazeta Matematica", Romania (1999)

Prize for Excellence in Research of "Societatea Matematicienilor", Romania (2000)

Honorary Medal of the University of Jyvaskyla, Finland (2004)

"Nicolae Teodorescu" prize of the Academy of Romanian Scientists (2008)

Main Invitations

University of Jyvaskyla Finland, 45 months (1990 – 2017)

INRIA, Paris, 12 months (1991), postdoctoral fellowship

Technical University Munchen, Germany, 6 months (1993), Humboldt Fellow

Royal Society, University of Westminster, London and **University of Canterbury**, United Kingdom, 6 months (1994-1996)

Weierstrass Institute, Berlin, Germany, 18 months (1997, 2000), Humboldt Fellow

Weierstrass Institute, Berlin, Germany, (2001-2004) member

Ecole Polytechnique Paris, Univ. Orleans, Univ. Grenoble, Univ. Perpignan, Univ. Alsace, Mulhouse : 8 months (2004- 2012)

Professional affiliation

- member of the **American Mathematical Society (AMS)**
- member of the **International Federation of Information Processing (IFIP)** - Technical Committee 7, Working Group 7.2
- member of the **Society for Mathematical Sciences in Romania (SSMR)** and of the **Association "Mathematical Recreations"**, Romania
- corresponding member of the **Academy of Romanian Scientists (2008)**
- full member of the **Academy of Romanian Scientists (2011)**
- corresponding member of the **Accademia Peloritana dei Pericolanti, Italia (2016)**

Other professional activities

- evaluator of mathematical research programmes in **Austria** and **Romania**
- Member in the Mathematics Panel, European Research Council, Bruxelles (since 2013)
- reviewer and referee for Mathematical Reviews, SIAM J. Control Optimiz., ESAIM, Appl. Mathematical Letters, Mathematical Models and Methods Appl. Sci, Zentralblatt fur Mathematik, Computational Optimization and Applications, etc.
- series co-editor "**Mathematics and its Applications**", Annals of ARS, Bucharest (since 2009)
- member of the **Editorial Board** of "**Recreatii Matematice**", Iasi, a journal directed to pupils, students and teachers in mathematics (since 2007)
- member of the **Editorial Board** of "**Mathematical Reports**" (**Bucharest**), **Romanian Academy** (2009-2012)
- member of the **Editorial Board** of "**Scientific Bulletin, ser. A**" (**Bucharest**) (since 2013)
- member of the **Editorial Board** of "**International Journal of Differential Equations**", **Hindawi** (since 2013)

- member of the **Editorial Board** of **Bulletin of the South Ural Univ.** (since 2016)

- member of the **Editorial Board** of **Mathematica, Romanian Academy, Cluj** (since 2017)
- lectures: **University of Bucharest**, Romania (ordinary differential equations for second year students) and **University of Jyvaskyla**, Finland (special chapters in optimal control and shape optimization for master and doctoral students and in the setting of the **Summer Schools** organized in 1995, 2004, 2007)
- scientific cooperation: with 34 mathematicians from 10 countries (see [List of Publications](#))

Conferences: organization and participation (a brief selection)

- co-organizer and co-editor of the proceedings volume for the **First French-Romanian Conference in Applied Mathematics**, Iasi 1992 (see [List of Publications](#))
- co-organizer and co-editor of the proceedings volume for the IFIP conference "**Analysis and optimization of differential systems**", Constanta, 2002 (see [List of Publications](#))
- co-organizer of "**Optimization of nonlinear systems and of free boundaries**", Constanta 1996 (reported in FBP News 12, Lisbon, December 1996)
- chair at the 3rd SIAM Conference "**Control and its Applications**", St.Louis, USA, 1995 (session "Computational and Numerical Methods in Control and Optimization")
- chair at the **International Congress of Mathematicians**, Berlin, 1998 (session "Distributed Parameters")
- organizer of special session "**Optimal Control**" (with M. Tucsnak, Nancy) at the French-Romanian Conference in Applied Mathematics, Craiova 2004
- domain organizer of **ECCOMAS 2004**, 4th European Congress on Computational Methods in Applied Sciences, Jyvaskyla, Finland, 2004

- organizer of the special session "**Shape analysis and optimization**" (with J. P. Zolesio, Nice, M. Delfour, Montreal, J. Cagnol, Paris) commemorating the 100th anniversary of the thesis of D.Pompeiu and the introduction of set distance by him IFIP meeting "**Systems Modeling and Optimization**", Torino, 2005, (see [List of Publications](#), T. Birsan and D. Tiba, 2006)
- organizer of the special session "**Dynamic Systems**" (with M. Tucsnak, Nancy) at the French-Romanian conference in Applied Mathematics, Chambéry, 2006
- co-organizer of the Conference "**Phase transitions and optimal control**", Berlin, October 23-25, 2008
- coordinator of the 10th "**French-Romanian Meeting**", Poitiers, France, August 2010
- co-organizer of **CAO 2011**, Univ. of Jyväskylä, June 2011
- co-organizer of the special session "**Approximation and Optimization in some Systems from Mechanics**" at IFIP 2011, Berlin , September 2011 (with C.Murea, Univ. Mulhouse, France)
- co-organizer of the special session "**Shape optimization and free boundary problems**", IFIP 2013, September 2013, Klagenfurt (with C. Murea, Univ.Mulhouse, France)
- co-organizer of the special session "**Modelling and Control in Contact Mechanics**", IFIP 2015, June 2015, Nice (with M. Sofonea, Univ. Perpignan, France)

Coordination of doctoral students

Ahmed Eljendy, opponent at the defence of his thesis

"**Exact controllability and stabilization of hyperbolic systems through boundary control**",
University of Jyväskylä, 1992

Cristian Danet, thesis "**Maximum and Comparison Principles, Applications**",
Institute of Mathematics, Romanian Academy, Bucharest, 2006

Merlusca Diana Rodica, thesis **Applications of duality in some infinite dimensional optimization problems**,
Institute of Mathematics, Romanian Academy (2014)

Roxana Mihaela Nicolai, thesis **Applications of Hamiltonian systems in analysis and optimization**,

Institute of Mathematics, Romanian Academy (2017)

Member of PhD Board of Examiners at the Universities of Craiova, Iasi, Constanta, Bucuresti in Romania, University of Jyväskylä in Finland, University of Orleans in France, University of Chisinau in Republic of Moldova

Financial Support (selection)

Postdoctoral grant, INRIA, Paris, 1991 (12 months)

Humboldt Fellow, Technical Univ. Munchen and Weierstrass Institute Berlin, 1993, 1997, 2000 (24 months)

Excellence grant ANCS nr.2 - CEX06-11-18/2006, oct.2006-sept.2008 (36 months)

Cooperation programme "Optimization, identification and control of systems with distributed parameters" with Institute of Mathematics and Mechanics, Ekaterinburg (V. Maksimov), financed by the Romanian and the Russian Academies of Sciences, 2008

LEA Math-Mode, (French-Romanian cooperation 2009-2011) programme co-director with M.Sofonea, Univ. Perpignan. France

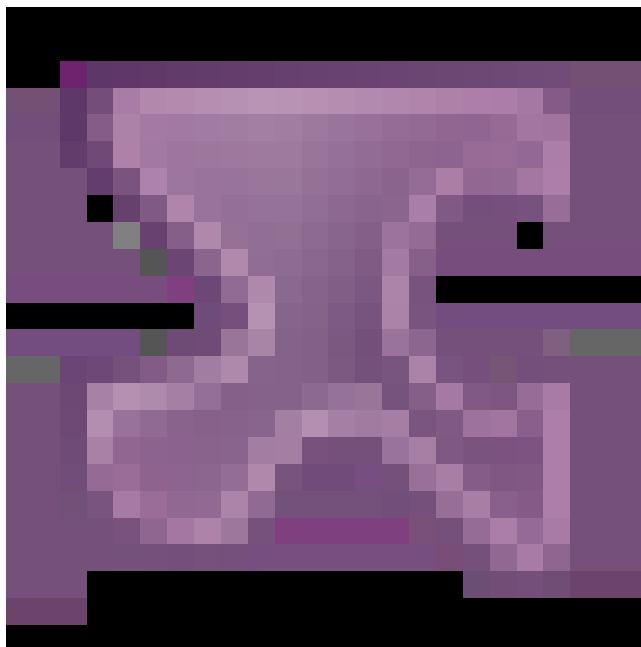
CNCSIS Grant 1192/2008 (36 months) Grant Director

Brincusi French-Romanian cooperation programme (2011-2012) programme co-director with C. Murea, Univ. Mulhouse, France

CNCS Grant 145/2011 (60 months) Grant Director

Recent talks

Univ. of Iasi, June 2010, "Al.Myller Seminar Centennial Conference"
"Approximation in shape optimization"



Eurogen, Univ. of Jyvaskyla, June 2007

"A Kalman-type filtering problem in the presence of multiplicative white noise"
(with A.Stoica, Univ. Politehnica Bucuresti)

Jyvaskyla Summer School, August 2007

"Introduction to Shape Optimization" (20h lectures)

Weierstrass Institute Berlin, September 2007

"Optimal control methods in shape optimization"

Mathematisches Forschungsinstitut Oberwolfach, March 2008

"An optimal control approach in optimal design"

Bedlewo Institute of Mathematics, September 2008

"Existence in shape optimization"

Weierstrass Institute Berlin, October 2008

"Optimization problems for thin elastic structures"

Ecole Polytechnique Paris, November 12, 2008

"Existence et approximation en optimisation des formes"

Institut Henri Poincare Paris, November 17, 2008

"La methode variationnelle avec controle"

University of Bucharest, January 2009

"Control Problems with Mixed Constraints"

University of Regensburg, March 2009

"Existence and Approximation in Shape Optimization"

Institute of Mathematics Bucharest, April 2009

"A Schwartz-type algorithms for elliptic ill-posed problems"

Univ.Perpignan, France, September 2009

"Applications of the control variational method"

Weierstrass Institute, Berlin, December 2009

"Finite element approximation in shape optimization problems"

Institute of Mathematics, Bucharest, May 2010

"The control variational method in the nonconvex case"

Lambrecht, July 2010

"Finite element discretization in shape optimization problems with Neumann or mixed boundary conditions"

Institute of Mathematics, Bucharest, April 2011

"Extensions of the control variational method",

BCAM. Bilbao, Spain, May 2011

"Penalization and regularization in certain shape optimization problems",

Univ. of Jyvaskyla, Finland, June 2011

"Approximation in a fixed domain for shape optimization problems",

Univ. of Toronto, July 2011 (SciCADE Conference)

“A penalization method in a fluid-solid free boundary problem”,

Technische Univ. Berlin, September 2011 (IFIP Conference)

“Approximation in shape optimization for the stationary Navier-Stokes equation”,

Orlando, October 2011 (SIAM meeting)

“Recent results in the approximation of shape optimization problems”,

BCAM, Bilbao. May 2012

“Penalization and regularization techniques in shape optimization”,

CIRM Luminy, June 2012

“Finite element methods in shape optimization under weak regularity assumptions”,

Univ. of Bucharest, August 2012 (French-Romanian meeting in applied mathematics)

“Domains of class C; properties and applications”

Univ. Craiova (Conferința internațională CDPS, iulie 2013)

“Fixed domain methods in shape optimization”

Weierstrass Institute Berlin, Octombrie 2013

“Implicit Functions and Parametrizations”

Univ. Jyvaskyla, Noiembrie 2013

“Applications in shape optimization of the implicit parametrization theorem”

Univ. Iasi, Noiembrie 2013

“Applications in shape optimization of the implicit parametrization theorem”

Univ. Chisinau, Noiembrie 2013

“Implicit Functions and Parametrizations in Dimension Three”

Institute of Mathematics, Bucharest, May 2014

“Implicit systems in arbitrary dimension: local parametrization and generalized solutions”

Madrid , July 2014

A differential equations approach to implicit systems

Univ. of Bacau , September 2014

A new approach to implicit systems in dimension two and three

Romanian Academy, Bucharest, March 2015

Generalized solutions of implicit systems in the critical case

Nice, June 2015 (IFIP meeting)

Implicit systems and applications in shape optimization

Paris, July 2015 (SIAM meeting)

Boundary cost functionals in shape optimization

Univ. Iasi, September 2015, **Generalized solutions of implicit systems and applications**

Inst. of Mathematics, Bucharest, April 2016, **A duality approach to some nonlinear PDEs**

Cortona, Italy, June 2016, **A Hamiltonian approach to implicit systems and applications in nonlinear programming**

Boston, USA, SIAM meeting, July 2016, **Iterated Hamiltonian systems and applications**

Univ. Craiova, Romai meeting, September 2016, **Applications of fixed domain methods in shape optimization problems and free boundary problems**

Institute of Mathematics, Bucharest, November 2016, **Uniqueness properties for Hamiltonian Systems**

University of Messina. November 2016, **Iterated Hamiltonians and applications in optimization**

Xian, Jiaotong Univ., June 2017

Fixed domain methods for variational inequalities and free boundary problems

Univ. of Perpignan, September 2017
Optimization of a plate with holes

Padova, September 2017
Some remarks on state constraints and mixed constraints

Paris, EDF, November 2017
Implicit parametrizations and applications in optimization

Oberwolfach, April 2018

Optimal control methods in shape optimization