Curriculum Vitae of Giuseppe Buttazzo

Name: Buttazzo

First name: Giuseppe

Date of birth: May 22, 1954

Place of birth: Castri di Lecce (LE) - Italy

Current position: Full Professor of Mathematical Analysis at the "Dipartimento di Matematica" of University of Pisa (Italy)

Languages: Italian (native language), French (spoken and written), English (spoken and written)

Business address: Dipartimento di Matematica - Largo B. Pontecorvo, 5 - 56127 PISA (Italy)
Tel.: +39 050 2213304, Fax: +39 050 2213224, e-mail: giuseppe.buttazzo@unipi.it

Professional societies: Unione Matematica Italiana

Academic Titles and Career

July 1972: High school Diploma (Maturità di Liceo Scientifico).

October 1972: Beginning of the first year in Mathematics at the University of Pisa.

October 1973: Winning a competition for a student position in Mathematics at the Scuola Normale Superiore di Pisa.

July 1976: Taking the degree certificate (Laurea) in Mathematics at the University of Pisa with full marks (110/110 cum laude), and the Diploma in Mathematics at the Scuola Normale Superiore di Pisa. Title of the thesis: *Su un tipo di convergenza variazionale*, adviser: Prof. Ennio De Giorgi.

December 1976: Winning a competition for a Ph. D. position (Perfezionando) in Mathematics at the Scuola Normale Superiore di Pisa; research adviser: Prof. Ennio De Giorgi.

Academic Year 1978–1979: One year of study and research in Paris at the Ecole Normale Supérieure.

September 1981: Winning a competition for a permanent position (Ricercatore Confermato) in Mathematics at the Scuola Normale Superiore di Pisa.

December 1986: Winning a national competition for a Full Professor position in Mathematical Analysis.

May 16, 1987–October 31, 1990: Full professor of Mathematical Analysis at University of Ferrara.

January 3–October 31, 1990: President of the "Consiglio di Corso di Laurea in Matematica" of University of Ferrara.

From November 1, 1990: Full professor of Mathematical Analysis at University of Pisa.

Experiences in evaluation panels

2009

- member of the AERES Evaluation Committee of the research center *INRIA Saclay*, Paris (France).

2010

- member of the International Advisory Panel of the research center *Centro de Matemática e Aplicações Fundamentais* (CMAF), Lisbon (Portugal).

2011

- member of the AERES Evaluation Committee of the research centers *Laboratoire dAnalyse, Topologie, Probabilités* (LATP) and *Fédération de Recherche des Unités de Mathématiques de Marseille* (FRUMAM), Marseille (France).

2012

- member of the Evaluation Panel for Mathematics (GEV 01) of the National Evaluation Agency (ANVUR), Italy.
- member of the Evaluation Committee of the research center *The Mathematics of Emergent Effects* of Deutsche Forschungsgemeinschaft (DFG), Bonn (Germany).

2014
- member of the *European Research Council* (ERC) evaluation panel, sector PE1 Mathematics – Starting Grants.
- member of the Evaluation Committee of the *Institut Universitaire de France*.

2015
- member of the Evaluation Committee of the *Institut Universitaire de France*
- member of the HCERES Evaluation Committee of the research center *Institut de Mathématiques de Bourgogne* (IMB), Dijon (France).

2016
- member of the *European Research Council* (ERC) evaluation panel, sector PE1 Mathematics – Starting Grants.
- member of the Evaluation Committee of the *Institut Universitaire de France*

2017
- member of the national evaluation panel of Deutsche Forschungsgemeinschaft (DFG), (Germany).

2018
- member of the *European Research Council* (ERC) evaluation panel, sector PE1 Mathematics – Starting Grants.
- member of the evaluation panel for Innovative Training Networks (ITN) projects of the European Commission Research Executive Agency.
- member of the HCERES Evaluation Committee of the research center *Laboratoire Jacques-Louis Lions* (LJLL), Paris (France).
- member of the HCERES Evaluation Committee of the research center *Centre de Recherches en Mathématiques Appliquées* (CMAP) of the École Polytechnique, Paris (France).
- member of the national evaluation panel of Deutsche Forschungsgemeinschaft (DFG), (Germany).
- member of the MOSTA Evaluation Committee of the Lithuanian universities of Physical Sciences, Vilnius (Lithuania).

2019
- member of the evaluation panel for Innovative Training Networks (ITN) projects of the European Commission Research Executive Agency.

2020
- member of the *European Research Council* (ERC) evaluation panel, sector PE1 Mathematics – Starting Grants.

Awards and Honours

- Santaló lecturer for 2010 at Universidad Complutense de Madrid;
- Winner of *"Premio Luigi e Wanda Amerio 2011"*, awarded by the "Istituto Lombardo Accademia di Scienze e Lettere";
- Winner of *"Premio Città di Castri 2012"*, awarded by the town of Castri di Lecce.

Participation to Editorial Boards

Editor of several international journals as:
- Journal of Convex Analysis (managing editor),
- ESAIM: Control, Optimisation and Calculus of Variations (COCV),
- Set-Valued and Variational Analysis: Theory and Applications,
- Revista Matemática Complutense,
- Applied Mathematics and Optimization,
- ISRN Mathematical Analysis,
- Pure and Applied Functional Analysis,
- Rendiconti del Circolo Matematico di Palermo,
- International Journal of Pure and Applied Mathematics (IJPAM),
- International Journal of Differential Equations and Applications (IJDEA),

- International Journal of Dynamical Systems and Differential Equations (IJDSDE),
- Communications in Applied Analysis,
- Advanced Mathematical Models & Applications,
- Mathematical Control and Related Fields (MCRF),
- Advances in Continuous and Discrete Models: Theory and Modern Applications,
- Journal of Optimization Theory and Applications (2015-2021),
- Discrete and Continuous Dynamical Systems (1995–2014),
- Journal of the Egyptian Mathematical Society (1993–2012),
- Annali dell'Università di Ferrara (1987–1990).

Scientific Research

My scientific research has been mainly devoted to the following fields, in which I published more than 200 papers and 23 books (see list of publications).

- General theory of Γ-convergence
- Γ-convergence for functionals of the calculus of variations
- Bounce problems on Riemannian manifolds
- Semicontinuity and relaxation for integral functionals
- Optimal control problems: relaxed controls and limit problems
- Continuous operators between function spaces
- Singular perturbation problems
- Integral representation theory for local functionals
- Limit problems and asymptotic analysis in the continuum mechanics
- Existence theory for unilateral problems in linear and nonlinear elasticity
- Macroscopic behaviour of elastic periodic networks: homogenization
- Variational problems with a lack of coercivity
- Quasilinear elliptic equations
- Functionals defined on the space of measures
- The Lavrentiev Phenomenon in the calculus of variations
- Shape optimization problems
- Optimization problems in mass transportation theory

On the subjects above I have given lectures at many Universities in Italy and abroad, in the following countries:
Algeria, Australia, Austria, Bulgaria, Canada, Chile, China, Denmark, France, Germany, Great Britain, Israel, Netherland, Norway, Philippines, Poland, Portugal, Romania, Spain, Sweden, Switzerland, Taiwan, U.S.A.

On the subjects above I have organized a large number of scientific meetings (at national and international level) that allowed distinguished senior researchers to meet and discuss on new problems and new scientific developments, and young researchers to interact with the international scientific community.

I have been, since a long time, the scientific responsible of a research group in Pisa that has always been funded by the Italian Ministry of University and Research (MIUR) through national projects (PRIN). This allowed to train a number of students to the fascinating field of variational problems; many of them now occupy important positions in Italy and abroad.

Didactic and Training Activity

I have given many courses on several subjects in Mathematical Analysis, at Bachelor level, Master level and Ph.D. level. I supervised several research theses at "Laurea" level and at Ph.D. level.
LAUREA THESES:

- L. Freddi: Università di Ferrara, 1987-1988.
- O. Ascenzi: Università di Pisa, 1989-1990.
- S. Parma: Università di Ferrara, 1990-1991.
- G. Mazzini: Università di Pisa, 1991-1992.
- M. Guidorzi: Università di Ferrara, 1992-1993.
- F. Nicolai: Università di Pisa, 1993-1994.

- I. Fragalà: Università di Pisa, 1994-1995.
- L. De Pascale: Università di Pisa, 1995-1996.
- P. Guasoni: Università di Pisa, 1995-1996.
- E. Ricci: Università di Pisa, 1999-2000.
- A. Brancolini: Università di Pisa, 2001-2002.
- F. Santambrogio: Università di Pisa, 2002-2003.
- R. Farolfi: Università di Pisa, 2006-2007.
- V. Rispoli: Università di Pisa, 2006-2007.
- B. Lenzo: Università di Pisa, 2007-2008.
- M. Grava: Università di Pisa, 2008-2009.
- Xin Yang Lu: Università di Pisa, 2008-2009.
- I. Lucardesi: Università di Pisa, 2008-2009.
- M. Monteverde: Università di Genova, 2011-2012.
- C.G. Biondi: Università di Pisa, 2018-2019.

PH. D. THESES:

- Loris Faina: *Some nonconvex variational problems in BV spaces.* SISSA-Trieste, 1994.
- Lorenzo Freddi: *Rilassamento e convergenza di problemi di controllo ottimo.* Università di Pisa, 1994.
- Marino Belloni: *Rilassamento di problemi variazionali con fenomeno di Lavrentiev.* Università di Pisa, 1996.
- Paola Trebeschi: *Esistenza di soluzioni in problemi di ottimizzazione di forma e ostacoli.* Università di Pisa, 1998.
- Ariela Briani: *Hamilton-Jacobi-Bellman equations and Γ-convergence for optimal control problems.* Università di Pisa, 1999.
- Ilaria Fragalà: *Tangential calculus and variational integrals with respect to a measure.* Università di Pisa, 2000.
- Luigi De Pascale: *Morse-Sard theorem in Sobolev spaces, transport problems and applications.* Università di Pisa, 2001.
- Francesca Prinari: *Calculus of variations for supremal functionals.* Università di Pisa, 2003.
- Andrea Davini: *Finsler metrics in optimization problems and Hamilton-Jacobi equations.* Università di Pisa, 2004.
- Michele Gori: *Lower semicontinuity and relaxation for integral and supremal functionals.* Università di Pisa, 2004.
- Luca Granieri: *Mass transportation problems and minimal measures.* Università di Pisa, 2005.
- Alessio Brancolini: *Optimization problems for transportation networks.* Scuola Normale Superiore di Pisa, 2006.
- Filippo Santambrogio: *Variational problems in transport theory with mass concentration.* Scuola Normale Superiore di Pisa, 2006.
- Lorenzo Brasco: *Geodesics and PDE methods in transport models.* Università di Pisa, 2010.
- Al-hassem Nayam: *Shape optimization problems of higher codimension.* Università di Pisa, 2011.
- Berardo Ruffini: *Optimization problems for solution of elliptic equations and stability issues.* Scuola Normale Superiore di Pisa, 2013.
- Bozhidar Velichkov: *Existence and regularity results for some shape optimization problems.* Scuola Normale Superiore di Pisa, 2013.
- Xin Yang Lu: *Geometric and regularity properties of solutions of some problems related to the average distance functional.* Scuola Normale Superiore di Pisa, 2013.
- Serena Guarino Lo Bianco: *Some optimization problems in mass transport theory.* Università di Pisa, 2014.
- Augusto Gerolin: *Multimarginal optimal transport and potential optimization problems for Schrödinger operators.* Università di Pisa, 2016.
- Harish Shrivastava: *Shape optimisation problems for integral functionals and regularity properties of optimal domains.* Università di Pisa, 2018.
- Francesco Paolo Maiale: *Shape optimization problems and regularity of the free boundaries.* Scuola Normale Superiore di Pisa, 2022.