

Alberto Bressan - Curriculum Vitae

PRESENT POSITION

Eberly Family Chair Professor of Mathematics, Penn State University,

Department of Mathematics, Eberly College of Science,
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Professional Preparation

B.S. in Mathematics, Nov. 1978, University of Padova, Italy.

Ph.D. in Mathematics, Aug. 1982, University of Colorado, Boulder, USA.

Appointments

Nov. 2003	Professor	Penn State University
June 1991	Professor	S.I.S.S.A., Trieste, Italy
Sept. 1986	Associate Professor	University of Colorado, Boulder
Jan. 1982	Researcher	University of Padova, Italy

Short term and visiting positions:

Sept.1997	Visiting Scholar	Mittag-Loeffler Institute, Stockholm
June 1998	Visiting Professor	City University, Hong Kong
Sept. 2000-May 2001	Visiting Scholar	N.T.N.U., Trondheim
Sept.-Oct. 2002	Visiting Professor	Chinese U. and City U., Hong Kong
Aug.-Sept. 2008	Visiting Professor	Center for Advanced Studies, Oslo
Sept.-Oct. 2010	Visiting Professor	University of Padova
March-April 2011	Visiting Professor	Shanghai Jiao Tong University
May-June 2012 to 2015	Visiting Professor	Shanghai Jiao Tong University
Sept. 2017-May 2018	Visiting Professor	University of Oxford.

HONORS

- Plenary speaker at the International Congress of Mathematicians, Beijing, 2002.
- “Antonio Feltrinelli” prize for Mathematics, Mechanics and Applications, *Accademia Nazionale dei Lincei*, Rome, 2006.
- “Analysis of Partial Differential Equations” prize, *Society for Industrial and Applied Mathematics*, Phoenix, 2007 (with Stefano Bianchini).
- “Maxim Bôcher” prize, *American Mathematical Society*, San Diego, 2008.
- “Luigi e Wanda Amerio” prize, *Accademia di Scienze e Lettere, Istituto Lombardo*. Milan, 2010.
- Elected member of the *Royal Norwegian Society of Sciences and Letters*, Trondheim, 2011.
- Elected member of the *Accademia di Scienze e Lettere, Istituto Lombardo*. Milan, 2011.
- “Gaetano Fichera” prize for mathematical analysis, *Unione Matematica Italiana*, Bologna, 2011.
- Elected Fellow of the *American Mathematical Society*, 2012.
- Meeting on *Nonlinear Hyperbolic PDEs and Applications*, celebrating the 60-th birthday of A. Bressan. S.I.S.S.A., Trieste, Italy, June 13–17, 2016.
- Conference on *Recent trends in Differential Equations*, celebrating the 75-th birthday of A. Cellina and the 60-th birthday of A. Bressan. University of Aveiro, Portugal, June 27–29, 2016.
- Elected member of the *Accademia Nazionale dei Lincei*, Rome, 2022.

PH.D. STUDENTS SUPERVISED

Franco Rampazzo,	S.I.S.S.A. 1989
Chang Eon Shin,	U. of Colorado Boulder, 1992
Benedetto Piccoli,	S.I.S.S.A. 1994
Graziano Crasta,	S.I.S.S.A. 1994
Rinaldo Colombo,	S.I.S.S.A. 1995
Debora Amadori,	S.I.S.S.A. 1995
Paolo Baiti,	S.I.S.S.A. 1997
Andrea Marson,	S.I.S.S.A. 1999
Graziano Guerra,	S.I.S.S.A. 2000
Marta Lewicka,	S.I.S.S.A. 2000
Paola Goatin,	S.I.S.S.A. 2000
Stefano Bianchini,	S.I.S.S.A. 2000
Giuseppe Coclite,	S.I.S.S.A. 2003
Massimo Fonte,	S.I.S.S.A. 2005
Fabio Priuli,	S.I.S.S.A. 2006
Yunho Hong,	Penn State, 2007
Carlotta Donadello,	S.I.S.S.A. 2008
Tao Wang,	Penn State, 2011
Giancarlo Facchi,	Penn State, 2013
Ke Han,	Penn State, 2013
Deling Wei,	Penn State, 2013
Dongmei Zhang,	Penn State, 2014
Qingtian Zhang,	Penn State, 2016
Yilun Jiang	Penn State, 2019
Qing Sun	Penn State, 2021
Hongxu Wei,	Penn State, 2021

PRESENT GRADUATE STUDENTS: Minyan Zhang.

POSTDOCS MENTORED:

Yunguang Lu, Ronghua Pan, Hailiang Li, Huijiang Zhao, Feimin Huang, Geng Chen, Fang Yu, Tao Huang, Tianyou Zhang, Khai Nguyen, Ryan Murray, Michele Palladino, Maria Teresa Chiri, Najmeh Salehi.

AFFILIATIONS:

- Unione Matematica Italiana
- American Mathematical Society
- Society for Industrial and Applied Mathematics

MEMBER OF THE EDITORIAL BOARD OF

- Advances in Differential Equations
- Analysis and Applications
- Archive for Rational Mechanics and Analysis
- Bollettino dell'Unione Matematica Italiana
- Bulletin of Irkutsk State University, Series "Mathematics".
- Communications in Mathematical Sciences
- ESAIM; Control, Optimization and Calculus of Variations (2006–2012)
- Differential and Integral Equations (until 2019)
- Discrete and Continuous Dynamical Systems
- Dynamic Games and Applications
- International Journal of Dynamical Systems and Differential Equations (2007-2014)
- Kinetic and Related Models
- Journal of Dynamics and Differential Equations
- Libertas Mathematica
- Journal of Differential Equations (co-editor in chief 2011-2016)
- Networks and Heterogeneous Media
- Nonlinear Differential Equations and Applications
- Rendiconti del Seminario Matematico, Università di Padova (1998–2012)
- Set Valued and Variational Analysis
- S.I.A.M. Journal of Mathematical Analysis (2001–2013)

SELECTED PLENARY LECTURES

- VI International Conference on Hyperbolic Problems, Hong Kong, June 1996.
- International Conference in memory of S. N. Kruzhkov, Besancon, June 1999.
- XVI Congress of the Unione Matematica Italiana, Naples, September 1999.
- Conference in honor of C. Dafermos, Providence, April 2001.
- Nonlinear Evolutionary P.D.E., Yellow Mountain, China, June 2001.
- Progress in P.D.E., Edinburgh, July 2001.
- IX International Conference on Hyperbolic Problems, Pasadena, March 2002.
- SIAM 50-th Anniversary Meeting, Philadelphia, July 2002 (topical lecture).
- International Congress of Mathematicians, Beijing, August 2002.
- International Conference on Nonlinear P.D.E. - Theory and Applications, Hong Kong, Sept. 2002.

- Nonlinear Evolution Problems, Roma, January 2003.
- Joint Conference of the Austrian Mathematical Society and the Unione Matematica Italiana, Bolzano, Sept. 2003.
- Workshop on non-linear PDE's, Princeton, March 2004.
- International Conference on Mathematics and its Applications, Hong Kong, May 2004.
- Conference on Analysis, Modeling and Computation of PDE and Multiphase Flow, Stony Brook, Aug. 2004.
- Australian Mathematical Society Annual Conference, Melbourne, Sept. 2004.
- S.I.A.M. Meeting on Mathematical Aspects of Nonlinear PDE's, Houston, Dec. 2004.
- AMS-IMS-SIAM Summer Research Conference in the Mathematical Sciences on "Control Methods in PDE-Dynamical Systems", July 2005.
- A.M.S. 1010-th Sectional Meeting, Johnson City, Oct. 2005.
- Conference on General Relativity and Shock Wave Theory, Stanford, April 2006.
- Conference on Geometric Control and Nonsmooth Analysis, Rome, June 2006.
- A.I.M.S. 6-th International Conference on Dynamical Systems, Differential Equations and Applications, Poitiers, June 2006.
- "Control of Physical Systems and Partial Differential Equations", Institut Henri Poincaré, Paris, June 2008.
- "50 Years of Optimal Control", Banach Center, Bedlewo, Poland, September 2008.
- Conference on "Nonsmooth Analysis, Control Theory and Differential Equations", Rome, June 2009.
- SIAM Meeting, Denver, July 2009 (topical lecture).
- SING6 meeting on Game Theory, Palermo, July 2010.
- Abel Symposium, Oslo, September 2010.
- "Hyperbolic Systems and Control of Networks", Institut Henri Poincaré, Paris, Oct. 2010.
- New Perspectives in Nonlinear PDE's, U. of Michigan, Ann Arbor, May 2011.
- Conference on Hyperbolic Conservation Laws and Continuum Mechanics, in honor of C. Dafermos, Brown University, May 2011.

- New Trends in Analysis and Control of Nonlinear PDEs. INDAM, Rome, June 2011.
- Nonlinear differential equations and control, celebrating Arrigo Cellina's 70th birthday, Milan, Sept. 2011.
- International Conference on Nonlinear Evolutionary PDEs, Shanghai Jiao Tong University, June 2012.
- International Conference on Partial Differential Equations and Variational Methods, Central China Normal University, Wuhan, May 2014.
- Nonlinear Evolutionary Partial Differential Equations, Shanghai Jiao Tong University, June 2014.
- Mathematical aspects of game theory and applications, Roscoff, France, July 2014.
- First Joint International Meeting RSME-SCM-SEMA-SIMAI-UMI (Italian and Spanish Mathematical Societies), Bilbao, July 2014.
- 13-th Viennese Workshop on Optimal Control and Dynamic Games, Vienna University of Technology, May 2015.
- International Conference on Nonlinear Partial Differential Equations and Their Numerical Analysis, Hangzhou Normal University, May 2015.
- International Conference on Evolutionary Partial Differential Equations, Shanghai Jiao Tong University, June 2015.
- Conference on "Shock Waves and Beyond", Institut Henri Poincaré, Paris, June 2015.
- Conference on "Mathematical Foundations of Traffic", IPAM, UCLA, Sept. 2015.
- Conference on "Nonlinear Partial Differential Equations and Applications", Institut Henri Poincaré, Paris, June 2016.
- Conference on Recent Trends in Differential Equations, U. of Aveiro, Portugal, June 2016.
- Conference on "Non-linear PDEs, mathematical physics, and stochastic analysis", NTNU, Trondheim, July 2016.
- Workshop on Nonlinear Waves: Analysis and Applications, U. of Pittsburgh, March 2017.
- Conference on Calculus of Variations and Nonlinear Partial Differential Equations, U. of California, Berkeley, May-June 2017.

- INdAM Workshop “New trends in Control Theory and PDEs”, Rome, July 2017.
- Conference on “Control of state constrained dynamical systems”, U. of Padova, Sept. 2017.
- Oxbridge PDE Conference, U. of Cambridge, March 2018.
- Conference of the French Society for Industrial and Applied Mathematics, Autrans (Grenoble), March 2018.
- Conference on “Optimization, state constraints, and geometric control”, Padova, May 2018.
- Conference on “Multiscale problems in materials and biology”, Fields Institute, Toronto, June 2018.
- “INdAM Day”, Bari, June 2019.
- Conference on “Stability of Nonlinear Waves: Analysis and Computation”, Institut Henri Poincaré, Paris, July 2019.
- Conference on “Nonlinear PDEs and Applications”, Ann Arbor, July 2019.
- China-Italy Conference on “Partial Differential Equations and their Applications”, Fudan University, Shanghai, Dec. 2019.
- One World PDE Seminar. Invited lecture, Sept. 2020.
- Conference “50 Years of Kruzhkov entropy solutions, and beyond”. Tours, Oct. 2020.
- Conference on “Nonlinear Evolutionary Partial Differential Equations”, Shanghai Jiao Tong University, Dec. 2020.
- Workshop on “PDEs and Continuum Mechanics”, Riemann International School of Mathematics, Varese, Italy, July 2021.
- Workshop on “Research Trends in Conservation Laws”, Istituto Nazionale di Alta Matematica, Rome, Sept. 2021.
- Conference on “Nonlinear PDEs and Applications”, Shanghai Jiao Tong University, Oct. 2021.
- Conference celebrating “100 years of the Unione Matematica Italiana and 800 years of the University of Padova”, May 2022.
- “International Conference on Partial Differential Equations”, Shanghai Jiao Tong University, July 2022.

SELECTED LECTURES AT ACADEMIC INSTITUTIONS

- Current Developments in Mathematics Conference, Harvard University, 2002.
- DiPerna Lecture, University of California, Berkeley, 2006.
- Riviere-Fabes Symposium on Analysis and PDE, University of Minnesota, 2008.
- University of Iowa, Dept. of Mathematics Distinguished Visitor's Lecture Series, 2011.
- SISSA colloquium, Trieste 2016.
- K. Aziz Lecture, University of Maryland, College Park, 2016.
- National Center for Mathematics and Interdisciplinary Sciences, Chinese Academy of Sciences, Distinguished Lecture, Beijing, Dec. 2018.
- Institute of Natural Sciences, Shanghai Jiao Tong University. Distinguished Lecture, Shanghai, Nov. 2020.

INVITED SHORT COURSES

- Introduction to hyperbolic conservation laws, Ravello, Italy, Sept. 1998.
- Hyperbolic systems of conservation laws, Anogia, Crete, July 2000.
- Viscosity solutions for systems of conservation laws, Newton Institute, Cambridge, UK, April 2003.
- BV solutions to hyperbolic systems via vanishing viscosity, C.I.M.E. course, Cetraro, Italy, July 2003.
- Viscosity solutions to hyperbolic systems of conservation laws, Wuhan, Oct. 2008
- Introduction to hyperbolic conservation laws in one space dimension, C.I.M.E. course, Cetraro, Italy, June 2009.
- A tutorial on hyperbolic conservation laws, I.M.A., Minneapolis, July 2009.
- Dynamic blocking problems, Irkutsk, July 2010.
- Differential games, Padova, Fall 2010.
- An introduction to control theory and differential games, Shanghai Jiao Tong University, Spring 2011.
- Flows generated by weakly differentiable vector fields, Shanghai Jiao Tong University, Spring 2012.

- Modeling and optimization for traffic flow, Summer school “BIOMAT-2012”, Granada, Spain, July 2012.
- Nonlinear variational wave equations, Shanghai Jiao Tong University, June 2013.
- Mathematical modeling of traffic flow, Shanghai Jiao Tong University, June 2014.
- Traffic flow on networks: modeling, optimization, and Nash equilibria. NetCo 2014 conference “New Trends in Optimal Control”, Tours, France, June 2014.
- Uniqueness and generic singularities for nonlinear wave equations, Shanghai Jiao Tong University, May-June 2015.
- Introduction to hyperbolic conservation laws, University of Oxford, November 2017.
- Some shape optimization problems in biology. Joint CDT Colloquium in Analysis and PDEs, Oxford, April 2018.
- An introduction to ramified transport, with applications to biology. Gran Sasso Science Institute, Nov. 2018.