CURRICULUM VITÆ

PAOLO SECCHI

ADDRESS:

Dipartimento di Ingegneria Civile, Architettura,
Territorio e Ambiente e di Matematica, DICATAM
Via Branze 43, 25123 BRESCIA, Italy
e-mail: paolo.secchi@unibs.it
home page: http://paolo-secchi.unibs.it/

EDUCATION:

Degree in Mathematics at Trento University, 1978. Thesis Director: Prof. H. Beirão da Veiga

EMPLOYMENT:

Fellowship in Mathematics of the Libera Università degli Studi di Trento, 1980 - 1982.
Fellowship of ITC (Istituto Trentino di Cultura di Trento), 1982 - 1983.
Assistant Professor (Ricercatore) in Mathematical Analysis, Trento University, 1984 - 1987.
Associate Professor in Mathematical Analysis, Padova University, 1988 - 1992.
Associate Professor in Mathematical Analysis, Pisa University, 1992 - 1994.
Full Professor in Mathematical Analysis, University of Basilicata (Potenza), 1994 - 1996.
Full Professor in Mathematical Analysis, Brescia University, 1996 - 2024.

VISITING PROFESSOR:

- Mathematics Research Center di Madison (Wisconsin), October 1985.
- University of Saarbrücken (Germany), June 1990, invited by Prof. J. Bemelmans.
- Nara Womens University (invited by Prof. T. Yanagisawa) and Waseda University of Tokyo (invited by Prof.Y. Shibata), May 1998.
- Laboratoire Paul Painlevé, Université Lille 1, Villeneuve D'Ascq, June - July 2005.
- The Institute of Mathematical Sciences, Chinese University of Hong Kong (invited by Prof. Zhouping Xin), May 2010.
- Isaac Newton Institute for Mathematical Sciences, Cambridge UK, May 2014.
- University of Surrey, Guildford UK, May 2015.
- Nara Women University, Nara, January 25 - February 6, 2016.
- Wuhan University, Wuhan, China, March 2018.

MEMBERSHIP OF SCIENTIFIC COMMITTEES:

Conference on Nonlinear Partial Differential Equations, Padova, April 1990.
Partial Differential Equations and Continuum Mechanics, International Center for Mathematical Research (CIRM), Trento, June 1991.
IPERBS 2000, Problemi di tipo iperbolico, VIII Incontro Nazionale, Brescia, December 2000.
Advances Courses: Hyperbolic PDEs, Brescia, March - May 2002 (lectures by Bianchini, Métivier, Shibata).
Advances Courses on PDEs 2003, Brescia, May 2003 (Feireisl, Georgiev).
Advances Course on PDEs 2006, Brescia, May 2006 (Nicolaenko).
IPERPD 2006, Problemi di tipo iperbolico, XII Incontro Nazionale, Padova, September 2006.
Topics of Fluid Dynamics, Brescia, April 2009.
International Summer School on Mathematical Fluid Dynamics, CIRM, Levico T., June 27-July 2, 2010.
International Winter School on Mathematical Fluid Dynamics, CIRM, Levico T., December 16 - 21, 2012.
International Conference on Recent Advances in PDEs and Applications (on occasion of Prof. H. Beirão da Veiga's 70th birthday), Levico T., February 17-21, 2014.
- Minisymposium "Singular limits in mathematical physics", 8th International Congress on Industrial and Applied Mathematics ICIAM 2015, Beijing, August 10-14, 2015.
- Minisymposium Recent progress in the mathematical theory of fluid dynamics, BAMC 2017, University of Surrey, Guildford UK, April 10-12, 2017.
- Equazioni alle Derivate Parziali nella Dinamica dei Fluidi, Centro di Ricerca Matematica Ennio De Giorgi, Pisa, 5 - 7 febbraio 2018.
- Recent Advances in Nonlinear Analysis, On the occasion of Vicentiu Radulescu 60th anniversary, Levico T. (Trento), Italy, May 28 - 31, 2018.
- Meeting on Nonlinear Evolution PDEs, Fluid Dynamics and Transport Equations, Erice (Trapani), May 25 - 31, 2023.

RESEARCH CONTRACTS AND GRANTS (principal only):

- Local coordinator of the research project COFIN 1998, Hyperbolic equations in Fluid Dynamics and Continuum Mechanics.
- Local coordinator of the research project COFIN 2000, Equations of hyperbolic type in Fluid Dynamics and Continuum Mechanics.
- National coordinator of the research project PRIN 2005, Fluid Dynamics and Conservation Laws.
- Local coordinator of the research project PRIN 2007, Equations of Fluid Dynamics and Conservation Laws.
- Local coordinator of the research project PRIN 2009, Equations of Fluid Dynamics of Hyperbolic Type and Conservation Laws.
- Local coordinator of the research project PRIN 2012, Nonlinear Hyperbolic PDE, Dispersive and Transport Equations: theoretical and applicative aspects.
- Local coordinator of the research project PRIN 2015, Hyperbolic Systems of Conservation Laws and Fluid Dynamics: Analysis and Applications.
- Local coordinator of the research project PRIN 2020, Nonlinear evolution PDEs, fluid dynamics and transport equations: theoretical foundations and applications.

SCIENTIFIC INTERESTS:

Partial Differential Equations, Mathematical problems in Fluid Dynamics, Magneto-hydrodynamics, Nonlinear Hyperbolic Systems

INVITED LECTURES AND SEMINARS:

- Viscosity method for nonlinear conservation laws, Trento, May 1984.
- On the viscosity method for nonlinear conservation laws, Torino, May 1985.
- L^p-Stability for the strong solutions of the Navier-Stokes equations in the whole space, Mathematics Research Center, Madison, Wisconsin, October 1985.
- Stationary solutions and stability for the Navier-Stokes equations, Scuola Normale Superiore di Pisa, February 1987.
- Equations of motion of viscous gaseous stars, Scuola Normale Superiore di Pisa, December 1988.
- On the motion of gaseous stars in the presence of radiation, Conference "Navier-Stokes equations, Saarbrücken, March 1989.
- On nonviscous compressible fluids in a time-dependent domain, Saarbrücken, June 1990.
- On the motion of viscous fluids in the presence of diffusion, Saarbrücken, June 1990.
- On the generic solvability of the Navier-Stokes equations, Saarbrücken, July 1990.
- On nonviscous compressible fluids in a time-dependent domain, Conference "Non linear variational problems and Partial Differential Equations", Isola d'Elba, October 1990.
- On nonviscous compressible fluids in a time-dependent domain, "Semester on Partial Differential Equations", Banach Center, Warsaw, November 1990.
- Compressible inviscid fluids in time-dependent domains, L'Aquila, May 1991.
- On a stationary problem for the compressible Navier-Stokes equations, Conference "P.D.E. and Continuum Mechanics", C.I.R.M., Trento, June 1991.
- Mixed problems with characteristic boundary for the equations of Magneto-Hydrodynamics, Conference "Equazioni a Derivate Parziali", Padova, May 1992.
- Mixed problems for the equations of ideal Magneto-Hydrodynamics, Pisa, June 1992.
- Mixed problems for linear symmetric hyperbolic systems with characteristic boundary conditions, lectures at the Workshop on Qualitative Aspects of Evolution Equations, ICTP, Trieste, June 1993.
- Mixed problems for symmetric hyperbolic systems with characteristic boundary, lectures at the school Hyperbolische Differentialgleichungen - Theorie und Numerik, Eringerfeld, October 1993.
- Mixed problems for symmetric hyperbolic systems with characteristic boundary, Politecnico di Milano, January 1994.
- Symmetric hyperbolic systems with characteristic boundary, Potenza, May 1995.
- Symmetric hyperbolic systems with nonuniformly characteristic boundary, Trento, December 1995.
- Symmetric hyperbolic systems with nonuniformly characteristic boundary: regularity of solutions, Brescia, January 1996.
- Problems with characteristic boundary of variable multiplicity for positive symmetric systems, Ferrara, March 1996.
- A problem of inflow-outflow for inviscid compressible fluids, Milano Politecnico, June 1996.
- Inflow-outflow problems for inviscid compressible fluids, Int. Conf. Appl. Anal., Lisbon, February 1997.
- The open boundary problem for inviscid compressible fluids, 6-th Conference on Navier-Stokes Equations, Palanga, Lithuania, May 1997.
- On the singular incompressible limit of inviscid compressible fluids in a bounded domain, Nara Womens University, May 1998.
- Singular incompressible limit of inviscid compressible fluids in a bounded domain, Osaka, May 1998.
- On the singular incompressible limit of inviscid compressible fluids in a bounded domain, Waseda University, Tokyo, May 1998.
- Regular solutions to the equations of compressible and incompressible ideal magneto fluid

dynamics, Time-Dependent Magnetohydrodynamics: Analytical, Numerical, and Application Aspects , Kirchzarten, July 1998.

- A singular limit for the equations of Magneto-Hydrodynamics, Giornate di studi sulle equazioni di Meccanica dei fluidi deterministiche e stocastiche, Torino, September 1998.

- The incompressible limit for the equations of ideal magneto-hydrodynamics in the halfspace, Hyperbolic aspects of Fluid Dynamics, Oberwolfach, May 1999.

- The incompressible limit for the equations of ideal magneto-hydrodynamics in the halfspace, Theoretical Fluid Dinamics and Related Topics, Lisbon, June 1999.

- The incompressible limit of inviscid compressible fluids, 7-th Conference on Navier-Stokes Equations, Ferrara, September 1999.

- Life span and global existence of 2D irrotational compressible fluids, convegno Partial Differential Equations and Related Topics, Pisa, May 2000.

- Life span and global existence of 2D inviscid compressible fluids, Conference on Navier-Stokes Equations: Theory and Numerical Methods, Varenna, June 2000.

- Global existence of slightly compressible ideal flow in the halfplane, workshop Navier-Stokes Equations: Theory and Applications, Ferrara, June 2000.

- Pointwise decay estimates for the solutions of the exterior problem in the plane for the wave equation, workshop Nonlinear hyperbolic equations, their applications on hydrodynamics, dynamical systems, Torino, October 2001.

- Slightly compressible inviscid flows with high velocity, Bologna, November 2001.

- Global classical solutions of 2D MHD system, Workshop on P.D.E., Ferrara, February 2002.

- 2D slightly irrotational compressible flow in the exterior domain, Workshop on Hyperbolic Equations, Venice, April 2002.

- 2D slightly compressible flow in an exterior domain, Conference on Advances on Nonlinear PDEs, LAquila, June 2002.

- 2D slightly compressible flow in an exterior domain, Navier-Stokes Equations and Related Topics (NSEC-8), in honour of O.A. Ladyzhenskaya, S. Peterbourg, September 2002.

- On the initial-boundary value problem for symmetric hyperbolic systems with characteristic boundary, Workshop Relativistic and Nonrelativistic Fluids, Golm bei Potsdam, October 2002.

- Introduction to hyperbolic symmetric systems with characteristic boundary, Trento, February 2003.

- The stability of compressible vortex sheets in two space dimensions, International Workshop on Non-linear PDE's: Theory and Applications, Madeira, June 2003.

- On compressible vortex sheets in two space dimensions, AIMS' Fifth International Conference on Dynamical Systems and Differential Equations, Pomona LA, CA, USA, June 2004.

- On compressible vortex sheets in two space dimensions, IPERPISA 2004, Pisa, October 2004.

- On compressible vortex sheets in two space dimensions, PDEs in Mathematical Physics, in memory of O.A. Ladyzhenskaya, Levico, October 2004.

- Nonlinear compressible vortex sheets in two space dimensions, Trento, November 2004.

- Nonlinear compressible vortex sheets in two space dimensions, Conference on Mathematical Methods in Hydrodynamics, Lille, June 2005.

- Nonlinear compressible vortex sheets in two space dimensions, Kyoto Conference on the Navier-Stokes Equations and their Applications, Kyoto, January 2006.

- Nonlinear compressible vortex sheets in two space dimensions, Conference Comportement asymptotique en mécanique des fluides, Lausanne, July 2006.

- Local stability of 2D compressible vortex sheets, Incontro sulle EDP nella Meccanica dei Continui, Pisa, March 28 - 29, 2007.

- Local stability and existence of 2D compressible vortex sheets, Conference "Differential Equations and Related Topics" dedicated to I.G. Petrovskii, Moscow, May 21 - 26, 2007.

- Local stability and existence of 2D compressible vortex sheets, Int. Conference dedicated to

300th Birthday of Leonard Euler, "Mathematical Hydrodynamics: Euler Equations and Related Topics", Saint-Petersburg, June 2007.

- Local stability and existence of 2D compressible vortex sheets, Joint International Meeting UMI - DMV Perugia, June 2007.

- A regularity result for characteristic BVP's for hyperbolic systems, Incontro sulle PDE, Dinamica dei Fluidi e Leggi di Conservazione, Pisa, November 2007.

- Free boundary problems for the equations of Fluid Dynamics of hyperbolic type, EVEQ 2008 International Summer School on Evolution Equations, Prague, Czech Republic, June 16–20, 2008.

- A regularity result for characteristic IBVPs of symmetric hyperbolic systems, WCNA 2008, Orlando, July 2 - July 9, 2008.

- A regularity result for characteristic IBVP's of symmetric hyperbolic systems, Navier-Stokes equations: Classical and generalized models, Pisa, September 22–27, 2008.

- Regularity of characteristic initial-boundary value problems, "Mathematical Physics and PDEs", Levico T., September 7-11, 2009.

- Regularity of weakly well-posed characteristic initial-boundary value problems, The Chinese University of Hong Kong, May 4, 2010.

- On the well-posedness of 3D incompressible current-vortex sheets, IperMe11, XIV Incontro Nazionale Problemi di Tipo Iperbolico, Messina 16-18 febbraio 2011.

- Su alcuni problemi di frontiera libera in MHD, Roma La Sapienza, 16 maggio 2011.

- A priori estimates for 3D incompressible current-vortex sheets, Mathematical Fluid Mechanics and Biomedical Applications, Ponta Delgada (Azores Islands), May 31 - June 04, 2011.

- A priori estimates for 3D incompressible current-vortex sheets, Ninth meeting on Hyperbolic Conservation Laws, Fluid Dynamics and Transport Equations: Recent results and Research perspectives, Trieste, July 18 - 22, 2011.

- A priori estimates for 3D incompressible current-vortex sheets, Equadiff 2011, Loughborough, August 1-5, 2011.

- Stability of the plasma-vacuum interface problem, Partial Differential Equations in Mathematical Physics and their Numerical Approximation, Levico T., September 5-8, 2011.

- Effetto di stabilizzazione del campo magnetico in problemi di frontiera libera, Stabilità ed Analisi Qualitativa nei Sistemi Dinamici, Convegno in onore del Prof. Luigi Salvadori, Levico T., 4-5 ottobre 2011.

- Stability of the plasma-vacuum interface problem, International Conference on Structural Nonlinear Dynamics and Diagnosis, Marrakech, Morocco, April 30 - May 2, 2012.

- Stability of the free plasma-vacuum interface, Workshop on Nonlinear Waves and their Stability, Konstanz, May 31 - June 02, 2012.

- Stability of the free plasma-vacuum interface, HYP 2012 - 14th International Conference on Hyperbolic Problems, Padova, June 25-29, 2012.

- Stability of the free plasma-vacuum interface, Mathematisches Kolloquium, RWTH Aachen, July 10, 2012.

- Well-posedness of the free plasma-vacuum interface, Int. Conf. on Mathematical Fluid Dynamics on the occasion of Prof. Yoshihiro Shibata's 60th birthday, Nara, March 5–9, 2013.

- The plasma-vacuum interface problem with external excitation, Seminar on nonlinear PDE in Nara, Nara Women's University, March 11, 2013.

- The plasma-vacuum interface problem with external excitation, Seminar OxPDE, Oxford, May 16, 2013.

- The plasma-vacuum interface problem with external excitation, 10th Meeting on Hyperbolic Conservation Laws and Fluid Dynamics, L'Aquila, July 11-12, 2013.

- An introduction to free boundary problems in MHD, Semester on free boundary problems and related topics, INI Cambridge, May 20, 2014.

- Stability of the linearized MHD-Maxwell free interface problem, Semester on free boundary problems and related topics, INI Cambridge, May 22, 2014.
- Stability of the linearized MHD-Maxwell free interface problem, The 10th AIMS Conference on Dynamical Systems, Differential Equations and Applications, Madrid, July 07-11, 2014.
- Nonlinear surface waves on the plasma-vacuum interface, Classical problems and new trends in mathematical fluid dynamics on the occasion of K. Pileckas' 60th birthday, Ferrara, September 29 - October 3, 2014.
- Nonlinear surface waves on the plasma-vacuum interface, Int. Conf. on Mathematical Fluid Dynamics, Present and Future, Waseda Univ., Tokyo, November 13, 2014.
- Approximate current-vortex sheets near the onset of instability, Seconda Università di Napoli, Caserta, 17 Marzo 2015.
- Approximate current-vortex sheets near the onset of instability, University of Surrey, Guildford, May 1, 2015.
- Approximate current-vortex sheets near the onset of instability, Mathematical Institute, Oxford, May 7, 2015.
- Approximate current-vortex sheets near the onset of instability, Imperial College, London, May 13, 2015.
- Approximate current-vortex sheets near the onset of instability, NEPDE 2015, Shanghai Jiao Tong University, June 2–7, 2015.
- Free boundary problems in MHD: Weak stability of the MHD-Maxwell free interface problem, Nara Women University, Nara, February 3, 2016.
- Free boundary problems in MHD: Approximate current-vortex sheets near the onset of instability, Nara Women University, Nara, February 4, 2016.
- On the approximate current-vortex sheets near the onset of instability, 11th Meeting on Nonlinear Hyperbolic PDEs and Applications, On the occasion of 60th birthday of Alberto Bressan, SISSA Trieste, June 13–17, 2016.
- On the weakly nonlinear Kelvin-Helmholtz instability of current-vortex sheets, Mathematical Institute, Oxford, April 7, 2017.
- On the weakly nonlinear Kelvin-Helmholtz instability of current-vortex sheets, Equadiff 2017, Bratislava, July 24–28, 2017.
- Nonlinear Stability of Relativistic Vortex Sheets in Two Spatial Dimensions, Workshop Equazioni alle Derivate Parziali nella Dinamica dei Fluidi, CRM SNS Pisa, February 6, 2018.
- On the Evolution Equation of Compressible Vortex Sheets, Wuhan University, Wuhan, March 13, 2018.
- Transition of current-vortex sheets to Kelvin-Helmholtz instability, Wuhan University of Technology, Wuhan, March 15, 2018.
- On the weakly nonlinear Kelvin-Helmholtz instability of current-vortex sheets, Central China Normal University, Wuhan, March 16, 2018.
- Anisotropic regularity of weakly stable solutions to hyperbolic mixed problems, Oxbridge PDE Conference, Oxford UK, March 18–19, 2019.
- On the Evolution Equation of Compressible Vortex Sheets, Conference PDE's in Fluid Mechanics, Castro-Urdiales, Spain, 2 - 4 September 2019.
- Stability of Multi-Dimensional Thermoelastic Contact Discontinuities, LIASFMA China-Italy Conference on PDEs and Their Applications, Fudan University, Shanghai, December 9–13, 2019.
- Weakly nonlinear surface waves on the plasma-vacuum interface, Nonlinear Evolutionary Partial Differential Equations (NEPDE 2020), Shanghai Jiao Tong University, December 1–4, 2020.
- Weakly nonlinear surface waves on the plasma-vacuum interface, Wuhan University, China, March 21, 2021.
- Weakly nonlinear surface waves on the plasma-vacuum interface, University of Pittsburgh, PA, USA, March 22, 2021.

- Geometric optics for surface waves on the plasma-vacuum interface, 15th International Conference on Free Boundary Problems, Berlin, September 16, 2021.
- Geometric optics for hyperbolic free boundary problems, XVIII International Conference on Hyperbolic Problems: Theory, Numerics and Applications, Màlaga, Spain, June 20–24, 2022.
- Geometric optics for hyperbolic free boundary problems, Portugal-Italy Conference on Nonlinear Differential Equations and Applications, Évora, Portugal, July 2–4, 2022.
- Introduction to the Nash-Moser implicit function theorem, online 9 hrs mini-course, Wuhan University, China, April 24–27, 2023.
- Free boundary problems in two-dimensional MHD, Meeting on Nonlinear Evolution PDEs, Fluid Dynamics and Transport Equations, Erice, May 25–31, 2023.
- The two-dimensional plasma-vacuum interface problem in ideal MHD, Int. Conf. on PDEs and Applications, in honour of the 70th birthday of Pierangelo Marcati, GSSI L'Aquila, June 19–24, 2023.
- Nonlinear stability of two-dimensional compressible current-vortex sheets, Christmas Workshop on Fluid Mechanics, Politecnico di Milano, December 19–21, 2023.

LIST OF PUBLICATIONS OF PAOLO SECCHI:

[1] P. Secchi, *Flussi non stazionari di fluidi incompressibili viscosi e ideali in un semipiano*, Ricerche di Matematica 34 (1985), 27–44.

[2] P. Secchi, *On the initial value problem for the equation of motion of viscous incompressible fluids in the presence of diffusion*, Boll. UMI (6) 1-B (1982), 1117–1130.

[3] P. Secchi, A. Valli, *A free boundary problem for compressible viscous fluids*, J. Reine Angew. Math. 341 (1983), 1–31.

[4] P. Secchi, *Existence theorems for compressible viscous fluids having zero shear viscosity*, Rend. Sem. Mat. Univ. Padova 71 (1984), 73–102.

[5] P. Secchi, *On the motion of viscous fluids in the presence of diffusion*, SIAM J. on Math. Anal. 19 (1988), 22–31.

[6] V. Casulli, G. Pontrelli, P. Secchi, *An Eulerian-Lagrangian method for open channel flows*, Numerical Methods in Laminar and Turbulent Flow, Pineridge Press, Swansea, 1985.

[7] H. Beirão da Veiga, P. Secchi, *L^p-Stability for the strong solutions of the Navier-Stokes equations in the whole space*, Arch. Rat. Mech. Anal. 98 (1987), 65–69.

[8] P. Secchi, *L^2-Stability for weak solutions of the Navier-Stokes equations in R^3*, Indiana Univ. Math. J. 36 (1987), 685–691.

[9] P. Marcati, A. J. Milani , P. Secchi, *Singular convergence of weak solutions for a quasilinear nonhomogeneous hyperbolic system*, Manuscripta Mathematica 60 (1988) 49–69.

[10] P. Secchi, *On the stationary and nonstationary Navier-Stokes equations in R^n*, Ann. Mat. Pura Appl. (IV) 153 (1988), 293–306.

[11] P. Secchi, *On the evolution equations of viscous gaseous stars*, Ann. Scuola Norm. Sup. Pisa 36 (1991), 295–318.

[12] P. Secchi, *On the motion of gaseous stars in the presence of radiation*, Comm. P.D.E. 15 (1990), 185–204.

[13] P. Secchi, *A note on the generic solvability of the Navier-Stokes equations*, Rend. Sem. Mat. Univ. Padova 83 (1990), 177–182.

[14] P. Secchi, *On the uniqueness of motion of viscous gaseous stars*, Math. Methods Appl. Sci. 13 (1990), 391–404.

[15] P. Secchi, *On nonviscous compressible fluids in a time-dependent domain*, Ann. Inst. Henri Poincaré, Analyse non linéaire 9 (1992), 683–704.

[16] P. Secchi, *On the motion of nonviscous compressible fluids in domains with boundary*, Partial Differential Equations, Banach Center Publications, Warszawa, 27 (1992), 447–455.

[17] P. Secchi, *On nonviscous compressible fluids in domains with moving boundaries*, Non linear variational problems and P.D.E., Pitman Research Notes in Math. Series 320, ed. Marino & Murthy, Longman (1995), 229–244.

[18] P. Secchi, *On a stationary problem for the compressible Navier-Stokes equations: the self-gravitating equilibrium solutions*, Differential Integral Equations 7(1994), 463–482.

[19] P. Secchi, *On the stationary motion of compressible viscous fluids*, Ann. Scuola Norm. Sup. Pisa 21, 1 (1994), 131–143.

[20] P. Secchi, *On the equations of ideal incompressible magneto-hydrodynamics*, Rend. Sem. Mat. Univ. Padova 90 (1993), 103–119.

[21] P. Secchi, *On an initial boundary value problem for the equations of ideal magneto-hydrodynamics*, Math. Methods Appl. Sci. 18 (1995), 841–853.

[22] P. Secchi, *Linear symmetric hyperbolic systems with characteristic boundary*, Math. Methods Appl. Sci. 18 (1995), 855–870.

[23] P. Secchi, *Mixed problems for linear symmetric hyperbolic systems with characteristic boundary condition*, Qualitative aspects and applications of nonlinear evolution equations (Trieste, 1993), World Sci. Publ., River Edge, NJ, 1994, 88–98.

[24] P. Secchi, *The initial boundary value problem for linear symmetric hyperbolic systems with characteristic boundary of constant multiplicity*, Differential Integral Equations 9 (1996), 671–700.

[25] P. Secchi, *Well-posedness of characteristic symmetric hyperbolic systems*, Arch. Rat. Mech. Anal. 134 (1996), 155–197.

[26] P. Secchi, *Well-posedness for a mixed problem for the equations of ideal magneto-hydrodynamics*, Archiv Math. (Basel) 64 (1995), 237–245.

[27] P. Secchi, *Characteristic symmetric hyperbolic systems with dissipation. Global existence and asymptotics*, Math. Methods Appl. Sci. 20 (1997), 583–597.

[28] F. Gazzola, P. Secchi, *Some results about stationary Navier-Stokes equations with a pressure-dependent viscosity*, Proceedings of the International Conference on Navier-Stokes Equations, Theory and Numerical Methods, Varenna 1997, Pitman Research Notes Math. 388 (1998), 31–37.

[29] P. Secchi, *A symmetric positive system with nonuniformly characteristic boundary*, Differential Integral Equations 11 (1998), 605–622.

[30] P. Secchi, *Inflow-outflow problems for inviscid compressible fluids*, Commun. Appl. Anal. 2 (1998), 81–110.

[31] P. Secchi, *The open boundary problem for inviscid compressible fluids*, Proceedings of the 6-th Conference on Navier-Stokes Equations (Palanga, Lithuania, 1997), VSP, 1998, 279–300.

[32] P. Secchi, *Full regularity of solutions to a nonuniformly characteristic boundary value problem for symmetric positive systems*, Adv. Math. Sci. Appl 10 (2000), 39–55.

[33] F. Gazzola, P. Secchi, *Inflow-outflow problems for Euler equations in a rectangular domain*, NoDEA 8 (2001), 195–217.

[34] P. Secchi, *Some properties of anisotropic Sobolev spaces*, Archiv Math. (Basel) 75 (2000), 207–216.

[35] P. Secchi, *An initial boundary value problem in ideal magneto-hydrodynamics*, NoDEA, 9 (2002), 441–458.

[36] P. Secchi, *On the singular incompressible limit of inviscid compressible fluids*, J. Math. Fluid Mech. 2 (2000), 107–125.

[37] P. Secchi, *On the incompressible limit of inviscid compressible fluids*, Proceedings NSEC7 Ferrara settembre 1999, Ann. Univ. Ferrara Sez. VII Sc. Mat. 46 (2000), 21–33.

[38] P. Secchi, *Life span of 2-D irrotational compressible fluids in the halfplane*, Math. Methods Appl. Sci., 25 (2002), 895–910.

[39] P. Secchi, *On slightly compressible ideal flow in the halfplane*, Arch. Rat. Mech. Anal., 161

(2002) 3, 231–255.

[40] E. Casella, P. Secchi, P. Trebeschi, *Global existence of 2D slightly compressible viscous magneto-fluid motion*, Portugaliae Mathematica, 59 (2002), 67–89.

[41] P. Secchi, *Life span and global existence of 2 − D compressible fluids*, The Navier-Stokes Equations: Theory and Numerical Methods, ed. R. Salvi, Dekker, Lecture Notes Pure Appl. Math. 223 (2002) 99–111.

[42] E. Casella, P. Secchi, P. Trebeschi, *Global classical solutions of 2D MHD system*, J. Math. Fluid Mech., 5 (2003), 70–91.

[43] P. Secchi, *Pointwise decay for solutions of the 2D Neumann exterior problem for the wave equation*, Boll. UMI, (8) 7-B (2004), 189–206.

[44] P. Secchi, *Pointwise decay for solutions of the 2D Neumann exterior problem for the wave equation II*, Rend. Sem. Mat. Univ. Padova, 108 (2002), 67–77.

[45] P. Secchi, Y. Shibata, *On the decay of solutions to the 2D Neumann exterior problem for the wave equation*, J. Differential Equations, 194 (2003), 221–236.

[46] P. Secchi, *2D slightly compressible ideal flow in an exterior domain*, J. Math. Fluid Mech., 8 (4) (2006), 564–590.

[47] A. Morando, P. Secchi, *On 3D slightly compressible Euler equations*, Portugaliae Mathematica, 61(3) (2004), 301–316.

[48] J.-F. Coulombel, P. Secchi, *The stability of compressible vortex sheets in two space dimensions*, Indiana Univ. Math. J. 53 (2004), 941–1012.

[49] J.-F. Coulombel, P. Secchi, *Stability of compressible vortex sheets*, Equadiff 2003, Hasselt, Belgium, World Scientific (2004), 502–504.

[50] J.-F. Coulombel, P. Secchi, *On the transition to instability for compressible vortex sheets*, Proc. Roy. Soc. Edinburgh, 134A (2004), 885–892.

[51] E. Casella, P. Secchi, P. Trebeschi, *Non-homogeneous linear symmetric hyperbolic systems with characteristic boundary*, Differential Integral Equations, 19 (1) (2006), 51–74.

[52] P. Secchi, *On compressible vortex sheets*, J. Math. Fluid Mech. 7 Suppl. 2 (2005), S254–S272.

[53] P. Secchi, P. Trebeschi, *Non-homogeneous quasi-linear symmetric hyperbolic systems with characteristic boundary*, Int. J. Pure Appl. Math., 23 (1) (2005), 39–59.

[54] J.-F. Coulombel, P. Secchi, *Nonlinear compressible vortex sheets in two space dimensions*, Ann. Scient. Éc. Norm. Sup. 4e série, 41 (2008), 85–139.

[55] P. Secchi, *On compressible and incompressible vortex sheets*, in Analysis and Simulation of Fluid Dynamics, Series: Advances in Mathematical Fluid Mechanics, Eds. Calgaro, Coulombel, Goudon, Birkhäuser (2007), 201–228.

[56] J.-F. Coulombel, P. Secchi, *Nonlinear stability of compressible vortex sheets*, Hyperbolic problems: Theory, Numerics, Applications, Proc. XI Int. Conf. Hyperbolic Problems, Lyon 2006, Eds. Benzoni-Gavage, D. Serre, Springer, 2008, 415–422.

[57] J.-F. Coulombel, P. Secchi, *Uniqueness of 2-D compressible vortex sheets*, Comm. Pure Appl. Anal., 8 (4) 2009, 1439–1450.

[58] A. Morando, P. Secchi, P. Trebeschi, *Regularity of solutions to characteristic initial-boundary value problems for symmetrizable systems*, J. Hyperbolic Differ. Equ., 6 (4) (2009), 753–808.

[59] P. Secchi, *An alpha model for compressible fluids*, Discrete Contin. Dyn. Syst. Ser. S, 3 (2) (2010), 351–359.

[60] P. Secchi, A. Morando, P. Trebeschi, *Hyperbolic problems with characteristic boundary*, J. Nečas Center for Mathematical Modeling, Prague, Lecture Notes vol. 5 (2009), 135–200.

[61] D. Catania, P. Secchi, *Global Existence and Finite Dimensional Global Attractor for a 3D Double Viscous MHD-α Model*, Commun. Math. Sci., 8 (4) (2010), 1021–1040.

[62] D. Catania, P. Secchi, *Global Existence for Two Regularized MHD Models in Three Space-Dimension*, Portugaliae Mathematica 68 (1) (2011), 41–52.

[63] A. Morando, P. Secchi, *Regularity of weakly well posed hyperbolic mixed problems with characteristic boundary*, J. Hyperbolic Differ. Equ. 8 (1) (2011), 37–99.

[64] A. Morando, P. Secchi, *Regularity of weakly well posed characteristic boundary value problems*, Int. J. Differ. Equ., vol. 2010, Article ID 524736, doi:10.1155/2010/524736.

[65] A. Morando, P. Secchi, P. Trebeschi, *Characteristic initial boundary value problems for symmetrizable systems*, Rend. Semin. Mat. Univ. Politec. Torino 67 (2009), no. 2, 229–245.

[66] A. Morando, P. Secchi, *Weakly well posed characteristic hyperbolic problems*, Riv. Mat. Univ. Parma 3 (2012), 147–162.

[67] D. Catania, P. Secchi, *Global regularity for some MHD-alpha systems*, Riv. Mat. Univ. Parma 3 (2012), 25–39.

[68] J.-F. Coulombel, A. Morando, P. Secchi, P. Trebeschi, *A priori estimates for 3D incompressible current-vortex sheets*, Commun. Math. Phys. 311 (1) (2012), 247–275, arXiv:1102.2763v1.

[69] P. Secchi, Y. Trakhinin, *Well-posedness of the linearized plasma-vacuum interface problem*, Interfaces and Free Boundaries, 15 (2013), 323–357; arXiv:1112.3101.

[70] P. Secchi, *A higher-order Hardy-type inequality in anisotropic Sobolev spaces*, Int. J. Differ. Equ., vol. 2012, Article ID 129691, 7 pages, 2012. doi:10.1155/2012/129691.

[71] P. Secchi, Y. Trakhinin, *Well-posedness of the plasma-vacuum interface problem*, Nonlinearity 27 (2014) 105–169.

[72] P. Secchi, *On the Nash-Moser iteration technique*, in "Recent Developments of Mathematical Fluid Mechanics", Series: Advances in Mathematical Fluid Mechanics, Edit. G.P. Galdi, J.G. Heywood, R. Rannacher, Birhäuser-Verlag 2016, pp. 443–457.

[73] D. Catania, M. D'Abbicco, P. Secchi, *Stability of the linearized MHD-Maxwell free interface problem*, Comm. Pure Appl. Anal., 13 (6) (2014), 2407–2443.

[74] A. Morando, P. Secchi, P. Trebeschi, *On a priori energy estimates for characteristic boundary value problems*, J. Fourier Anal. Appl., 20 (4) (2014), 816–864.

[75] P. Secchi, *Nonlinear surface waves on the plasma-vacuum interface*, Quart. Appl. Math., 73 (2015), 711–737.

[76] P. Secchi, *On the amplitude equation of approximate surface waves on the plasma-vacuum interface*, Springer Proceedings in Mathematics and Statistics 183 (2016), 181–201.

[77] A. Morando, P. Secchi, P. Trebeschi, *Approximate current-vortex sheets near the onset of instability*, J. Math. Pures Appl. 105 (2016), 490–536.

[78] P. Secchi, *Data dependence for the amplitude equation of surface waves*, Z. Angew. Math. Phys., 67 (2)(2016), 1–11, DOI 10.1007/s00033-016-0628-0.

[79] A. Morando, P. Secchi, P. Trebeschi, *Existence of approximate current-vortex sheets near the onset of instability*, J. Hyperbolic Differ. Equ., 14 (2) (2017), 193–248.

[80] A. Morando, P. Secchi, P. Trebeschi, *Data dependence of approximate current-vortex sheets near the onset of instability*, J. Hyperbolic Differ. Equ., 14 (3), (2017), 517–534.

[81] D. Catania, M. D'Abbicco, P. Secchi, *Weak stability of the plasma-vacuum interface problem*, J. Differential Equations 261 (6) (2016), 3169–3219.

[82] A. Morando, P. Secchi, P. Trebeschi, *On the weakly nonlinear Kelvin-Helmholtz instability of current-vortex sheets*, NoDEA Nonlinear Differential Equations Appl. 24 (4) (2017) paper no. 34, 18 pp. DOI 10.1007/s00030-017-0462-x.

[83] G.-Q. Chen, P. Secchi, T. Wang, *Nonlinear stability of relativistic vortex sheets in three-dimensional Minkowski spacetime*, Arch. Ration. Mech. Anal. 232 (2) (2019), 591–695. https://doi.org/10.1007/s00205-018-1330-5.

[84] A. Morando, P. Secchi, P. Trebeschi, *On the evolution equation of compressible vortex sheets*, Mathematische Nachrichten, 293 (5) (2020), 945–969. https://doi.org/10.1002/mana.201800162.

[85] P. Secchi, *Anisotropic regularity of linearized compressible vortex sheets*, J. Hyperbolic Differ. Equ., 17 (3) (2020), 443–458. https://doi.org/10.1142/S0219891620500113.

[86] A. Morando, P. Secchi, Y. Trakhinin, P. Trebeschi, *Stability of an incompressible plasma-*

vacuum interface with displacement current in vacuum, Math. Meth. Appl. Sci., 43 (2020), 7465–7483. https://doi.org/10.1002/mma.6488.

[87] G.-Q. Chen, P. Secchi, T. Wang, *Stability of multi-dimensional thermoelastic contact discontinuities*, Arch. Ration. Mech. Anal., 237 (3) (2020), 1271–1323. https://doi.org/10.1007/s00205-020-01531-5.

[88] A. Morando, P. Secchi, Y. Trakhinin, P. Trebeschi, *On well-posedness of the plasma-vacuum interface problem with displacement current in vacuum*, J. Phys.: Conf. Ser., 1666 (2020) 012053. DOI:10.1088/1742-6596/1666/1/012053.

[89] P. Secchi, Y. Yuan, *Weakly nonlinear surface waves on the plasma-vacuum interface*, J. Math. Pures Appl., 163 (2022), 132–203.

[90] A. Morando, P. Secchi, P. Trebeschi, D. Yuan, *Nonlinear stability and existence of two-dimensional compressible current-vortex sheets*, Arch. Rational Mech. Anal. (2023) 247:50, https://doi.org/10.1007/s00205-023-01865-w

[91] P. Secchi, Y. Trakhinin, T. Wang, *On vacuum free boundary problems in ideal compressible MHD*, Bull. Lond. Math. Soc., 55 (5) (2023), 2087–2111, https://doi.org/10.1112/blms.12913.

[92] P. Secchi, Y. Yuan, *Geometric optics for surface waves on the plasma–vacuum interface: higher order expansion*, Proceedings PICNDEA22, Évora, Portugal 2022.

[93] A. Morando, P. Secchi, P. Trebeschi, D. Yuan, *On the existence and stability of 2D compressible current-vortex sheets*, Proceedings PICNDEA22, Évora, Portugal 2022.

[94] P. Secchi, Y. Yuan, *Geometric optics for surface waves on the plasma–vacuum interface*, Proceedings HYP 2022, Màlaga, Spain 2022.

[95] A. Morando, P. Secchi, P. Trebeschi, D. Yuan, *Local existence of 2D compressible current-vortex sheets*, Proceedings HYP 2022, Màlaga, Spain 2022.

[96] A. Morando, P. Secchi, Y. Trakhinin, P. Trebeschi, D. Yuan, *Well-posedness of the two-dimensional compressible plasma-vacuum interface problem*, submitted to Arch. Ration. Mech. Anal.

[97] P. Secchi, *Anisotropic regularity of weakly stable solutions to Majda's hyperbolic mixed problem*, preprint 2018, submitted.