Curriculum Vitae

Francesca Crispo

General Information

Work address: Dipartimento di Matematica e Fisica, Università degli Studi della Campania "Luigi Vanvitelli", Viale Lincoln 5, c.a.p. 81100, Caserta, Italy
Telephone: +39/0823274720
E-mail: francesca.crispo@unicampania.it

1. Education

Jul 2000 MSc in Mathematics, at Università degli Studi della Campania "Luigi Vanvitelli", with mark 110/110 cum laude.

Dec 2004 P.h.D. in Mathematics, at Università degli Studi di Napoli "Federico II".
Advisor: Professor Paolo Maremonti. Thesis: "On the Navier-Stokes equations: space-time pointwise estimates in $\mathbb{R}^n$ and in the half-space".

2. Academic Records

Teaching Assistant at Mechanical Engineering Faculty, University of Pittsburgh, Pennsylvania, from 28/08 to 28/09/2000.

Post-Doc position (Research Grant) at Applied Mathematics Department "U.Dini", Faculty of Engineering, Università degli Studi di Pisa, March 2007–February 2009. Supervisor Prof. H. Beirao da Veiga.

Post-Doc position (INdAM Research Grant) at Applied Mathematics Department "U.Dini", faculty of Engineering, Università degli Studi di Pisa, March 2009–February 2011. Supervisor Prof. H. Beirao da Veiga.

Assistant Professor (Researcher) at Dipartimento di Matematica e Fisica, Università degli Studi della Campania "Luigi Vanvitelli", SSD MAT/07 - Mathematical Physics, from 27/12/2011 to 31/10/2016.

Associate Professore at Dipartimento di Matematica e Fisica, Università degli Studi della Campania "Luigi Vanvitelli", SSD MAT/07 - Fisica Matematica, since 01/11/2017.

On 03/12/2013 **Abilitazione Scientifica Nazionale** for Associate Professor - Settore concorsuale 01/A4 (Mathematical Physics), with 5/5 positive marks.

On 13/7/2018 **Abilitazione Scientifica Nazionale** for Full Professor - Settore concorsuale 01/A4 (Mathematical Physics), with 5/5 positive marks.

3. Publications

Articles

I F. Crispo, P. Maremonti, *An interpolation inequality in exterior domains*, Rend. Sem. Mat. Univ. Padova, **112** (2004), 11–39.

II F. Crispo, P. Maremonti, *On the (x,t) asymptotic properties of solutions of the Navier-Stokes equations in the half-space*, Zap. Nauchn. Sem. S.-Peterburg. Otdel. Mat. Inst. Steklov. (POMI), **318** (2004), 147–202; J. Math. Sci., Springer New York, **136** (2006), 3735–3767.

III F. Crispo, A. Tartaglione, *On the asymptotic stability of steady solutions of the Navier-Stokes equations in unbounded domains*, Math. Methods Appl. Sci., **30** (2007), 1375–1401.

IV F. Crispo, P. Maremonti, *Navier-Stokes equations in aperture domains: global existence with bounded flux and time-periodic solutions*, Math. Methods Appl. Sci., **31** (2008), 249–277.

V F. Crispo, *Shear thinning viscous fluids in cylindrical domanis. Regularity up to the boundary*, J. Math. Fluid Mech., **10** (2008), 311–325.

VI F. Crispo, *Global Regularity of a Class of p-Fluid Flows in Cylinders*, J. Math. Anal. Appl., **341** (2008), 559–574.

VII F. Crispo, *On the regularity of shear thickening viscous fluids*, Chin. Ann. Math. Ser. B, **30** (2009), 273–280.

VIII F. Crispo, *A note on the global regularity of steady flows of generalized Newtonian fluids*, Port. Math., **66** (2009), 211–223.

IX F. Crispo, C.R. Grisanti, *On the existence, uniqueness and $C^{1,\gamma}(\overline{\Omega})\cap W^{2,2}(\Omega)$ regularity for a class of shear-thinning fluids*, J. Math. Fluid Mech., **10** (2008), 455–487.

X F. Crispo, C.R. Grisanti, *On the $C^{1,\gamma}(\overline{\Omega})\cap W^{2,2}(\Omega)$ regularity for a class of electro-rheological fluids*, J. Math. Anal. Appl., **356** (2009), 119–132.

XI H. Beirão da Veiga, F. Crispo, *Sharp inviscid limit results under Navier type boundary conditions. An L^p theory*, J. Math. Fluid Mech., **12** (2010), 397- 411.

XII F. Crispo, *On the zero-viscosity limit for 3D Navier-Stokes equations under slip boundary conditions*, Riv. Math. Univ. Parma (N.S.), **1** (2010), 205–217.

XIII H. Beirão da Veiga, F. Crispo, *Concerning the $W^{k,p}$-inviscid limit for 3-D flows under a slip boundary condition*, J. Math. Fluid Mech., **13** (2011), 117–135.

XIV H. Beirão da Veiga, F. Crispo, C. R. Grisanti, *Reducing slip boundary value problems from the half to the whole space. Applications to inviscid limits and to non-Newtonian fluids*, J. Math. Anal. Appl., **377** (2011), 216–227.

XV H. Beirão da Veiga, F. Crispo, *The 3-D inviscid limit result under slip boundary conditions. A negative answer*, J. Math. Fluid Mech., **14** (2012), 55–59.

XVI H. Beirão da Veiga, F. Crispo, *On the global regularity for nonlinear systems of the p-Laplacian type*, Discrete Contin. Dynam. Syst.-Ser.S, **6** (2013), 1173–1191.

XVII H. Beirão da Veiga, F. Crispo, *A missed persistence property for the Euler equations and its effect on inviscid limits*, Nonlinearity, **25** (2012), 1661–1669.

XVIII H. Beirão da Veiga, F. Crispo, *F. On the global $W^{2,q}$ regularity for nonlinear N-systems of the p-Laplacian type in n space variables*, Nonlinear Anal., **75** (2012), 4346–4354.

XIX F. Crispo, P. Maremonti, *Higher regularity of solutions to the singular p-Laplacian parabolic system*, Adv. Diff. Equations, **18** (2013), 849–894.

XX F. Crispo, P. Maremonti, *On the higher regularity of solutions to the p-Laplacean system in the subquadratic case*, Riv. Math. Univ. Parma, **5** (2014), 39–63.

XXI F. Crispo, *A note on the existence and uniqueness of time-periodic electro-rheological flows*, Acta Applicandae Mathematicae, **132** (2014), 237–250.

XXII F. Crispo, P. Maremonti, *A high regularity result of solutions to modified p-Stokes equations*, Nonlinear Anal., **118** (2015), 97–129.

XXIII F. Crispo, C.R. Grisanti, P. Maremonti, *On the high regularity of solutions to the p -Laplacian boundary value problem in exterior domains*, Ann. Mat. Pura Appl. (4), **195** (2016), 821-834.

XXIV F. Crispo, P. Maremonti, *On the spatial asymptotic decay of a suitable weak solution to the Navier-Stokes Cauchy problem*, Nonlinearity, **29** (2016), 1355-1383.

XXV F. Crispo, P. Maremonti, *A remark on the partial regularity of a suitable weak solution to the Navier-Stokes Cauchy problem*, Discrete and Continuous Dynamical Systems-Series A, **37** (2017), 1283-1294.

XXVI A. Abbatiello, F. Crispo, P. Maremonti, *Electrorheological fluids: Ill posedness of uniqueness backward in time*, Nonlinear Analysis, Theory, Methods and Applications, **170** (2018), 47–69.

XXVII F. Crispo, C.R. Grisanti, P. Maremonti, *Singular p-Laplacian parabolic system in exterior domains: higher regularity of solutions and related properties of extinction and asymptotic behavior in time*, Annali Scuola Normale Sup. Pisa, XIX n. 3 (2019), 913–949.

XXVIII F. Crispo, P. Maremonti, M. Ruzicka, *Global L^r-estimates and regularizing effect for solutions to the $p(t,x)$-Laplacian systems*, Advances in Differential Equations, Adv. Differential Equations, **24** (2019), 407–434.

XXIX F. Crispo, C.R. Grisanti, *High regularity of the solution to the singular elliptic $p(\cdot)$-Laplacian system*, Nonlinear Anal., Theory, Methods and Applications, **190** (2020).

XXX F. Crispo, P. Maremonti, *Some remarks on the partial regularity of a suitable weak solution to the Navier-Stokes Cauchy problem*, J. Math. Sci. (N.Y.), **244** (2020), 981–997.

XXXI (Contributo in volume) F. Crispo, P. Maremonti, C.R.Grisanti, *Some new properties of a suitable weak solution to the Navier-Stokes equations*, In: T. Bodnar G. P. Galdi S. Necasova. Waves in Flows, Adv. Math. Fluid Mech.,159–179, Birkhäuser, Cham, 2021.

XXXII F. Crispo, P. Maremonti, *On the uniqueness of a suitable weak solution to the Navier-Stokes Cauchy problem.* SN Partial Differ. Equ. Appl., **2** (2021), no. 3, Paper No. 35.

XXXIII F. Crispo, P. Maremonti, *Navier-Stokes Cauchy problem with $|v_0(x)|^2$ lying in the Kato class $K3$* Mathematics, **9** (2021), ISSN: 2227-7390.

XXXIV F. Crispo, C.R. Grisanti, P. Maremonti, *Navier-Stokes equations: an analysis of a possible gap to achieve the energy equality*, Ric. Mat., **70** (2021), 235–249.

XXXV (Contributo in volume) F. Crispo, P. Maremonti, *A new proof of existence in the L^3-setting of solutions to the Navier–Stokes Cauchy problem*, EMS, Interactions between Elasticity and Fluid Mechanics, 2022, 115-134, DOI 10.4171/ESIAM/3, ISBN print 978-3-98547-027-3.

XXXVI F. Crispo, C.R. Grisanti, P. Maremonti, *Navier-Stokes equations: a new estimate of a possible gap related to the energy equality of a suitable weak solution*, Meccanica, (2023), ISSN: 0025-6455, doi: 10.1007/s11012-023-01642-9.

XXXVII H. Beirão da Veiga, F. Crispo, *A survey on some vanishing viscosity limit results.* Adv. Nonlinear Analysis, **12** (2023), doi: 10.1515/anona-2022-0309.

Accepted articles

R. Costa, S. Clain, G. Machado, J. M. Nóbrega, H. Beirão da Veiga, F. Crispo, *Imposing slip conditions on curved boundaries for 3D incompressible flows with a very high-order accurate*

finite volume scheme on polygonal meshes, Computer Methods in Applied Mechanics and Engineering, in press.

Proceedings

A1 F. Crispo, *On the stability and asymptotic stability of steady solutions of the Navier-Stokes equations in unbounded domains*, Monaco Roberto (ed.) et al., "WASCOM 2005" - Proceedings of the 13th conference on Waves and Stability in Continuous Media, Acireale, Italy, June 19-25, 2005. World Scientific, Singapore, (2006) 158–163.

A2 F. Crispo, P. Maremonti, *A high regularity result of solutions to a modified p-Navier-Stokes system*, Recent advances in partial differential equations and applications, 151–162, Contemp. Math., 666, Amer. Math. Soc., Providence, RI, 2016.

Articles in preparation

F. Crispo, A.P. Di Feola, *On a parabolic p-Laplacian system of Burgeres type*, forthcoming.

PhD Thesis

F. Crispo, *"On the Navier-Stokes equations: space-time pointwise estimates in* $\mathbb{R}^n$ *and in the half-space"*, 2004.

4. Research interests

The main interests regard the study of the dynamics of viscous incompressible fluids, Newtonian and non-Newtonian and, finally, the ideal fluids. For Newtonian fluids is considered as a model system the Navier-Stokes equations, for non-Newtonian fluids an appropriate generalization. The constitutive equation of a Newtonian incompressible viscous fluid is characterized by linear dependence of T, the Cauchy stress tensor, on the "shear rate":

$$T = -\pi I + 2\mu \mathcal{D}u,$$

where $\mathcal{D}u$ represents the symmetric part of the velocity gradient. For a non-Newtonian fluid the relationship between T and $\mathcal{D}u$ is, however, not linear. We consider, in particular, a subclass of non-Newtonian fluids, constituted by generalized Newtonian fluids, for which the constitutive equation has the following expression:

$$T = -\pi I + [\mu_0 + (\mu_1 + |\mathcal{D}u|)^{p-2}]\mathcal{D}u,$$

with μ_0 and μ_1 nonnegative constants and $p > 1$. We also consider electro-rheological fluids, characterized by their ability to significantly change their mechanical properties when subjected to an electric field. The expression of the stress tensor is fairly complex, taking into account the delicate interplay between electric field and shear rate. Choosing a constitutive equation simplification, following the ideas of Rajagopal and Ruzicka (Cont. Mech. Therm., 2001):

$$T = -\pi I + (\mu + \mid cDu|)^{p(|E|^2)-2}\mathcal{D}u,$$

where E is the electric field and p is a suitable function of $|E|^2$. The generalized Newtonian fluids can therefore be regarded as a special case of electro-rheological fluids, if you put p constant. Finally, in the case of ideal fluid we consider the Euler equations as a model system, for which the Cauchy stress tensor is expressed by the single pressure:

$$T = -\pi I.$$

This study covers different analytical aspects, such as well-posedness, which contributes to the validation of models, regularity of solutions, vanishing viscosity problems. In more details:

A. Navier-Stokes equations: well-posedness and stability (pointwise and in energy) of the rest and stationary motions, periodic motions as asymptotic limit of fluid motions, partial regularity, energy equality.

B. Non-Newtonian fluids: well-posednes, regularity, existence of periodic solutions. Study of the corresponding problems of elliptic and parabolic p-Laplacian type.

C. Inviscid limit of the Navier-Stokes equations to the Euler equations (vanishing viscosity limit).

5. PhD students

2022— Angelica Pia Di Feola, PhD in "Mathematics, Physics and applications to Engineering", Università degli Studi della Campania "Luigi Vanvitelli" , cycle XXXVIII.

2015–2018 Anna Abbatiello, PhD in "Mathematics, Physics and Applications", Università degli Studi della Campania "Luigi Vanvitelli", cycle XXX. Thesis: "On the analysis of selected problems related to incompressible non-Newtonian fluids".

6. Institutional activities

2020— **Coordinator** of the PhD Program in "Mathematics, Physics and applications to Engineering", Università degli Studi della Campania "Luigi Vanvitelli", XXXVI–XXXIX cycles.

2019— Referent for entrance test TOLC (CISIA), at Dipartimento di Matematica e Fisica, Università degli Studi della Campania "Luigi Vanvitelli".

2016— **Member of PhD Faculty Board (Collegio dei Docenti del Dottorato di Ricerca)** in "Mathematics, Physics and applications to Engineering", Università degli Studi della Campania "Luigi Vanvitelli", XXXII–XXXIX ciclo.

2013–2016 **Member of PhD Faculty Board (Collegio dei Docenti del Dottorato di Ricerca)** in "Mathematics, Physics and Applications", between Università degli Studi della Campania "Luigi Vanvitelli" and Università degli Studi di Salerno, cycle XXIX.

7. Invited speaker and invited seminars

16–17 Feb, 2006 – Seminar at Dipartimento di Matematica "L. Tonelli", Università degli Studi di Pisa, Pisa (Italy).
Title: *"Sulla stabilità e asintotica stabilità di soluzioni stazionarie delle equazioni di Navier-Stokes in domini non limitati".*

31 Aug–4 Sep, 2009 – Invited Speaker at *Seventh Meeting on Hyperbolic Conservation Laws and Fluid Dynamics: Recent Results and Research Perspectives*, SISSA-ISAS, Trieste (Italy).
Title: *"On the regularity and inviscid limit for the Navier-Stokes equations with slip type boundary conditions".*

31 Aug–27 Sep, 2009 – Invited Speaker at intensive research period: *Regularity for non-linear PDEs*, Centro de Giorgi, Pisa (Italy).
Title: *"Stationary non-Newtonian fluids: Regularity results up to the boundary".*

23–27 May, 2011 – Invited Speaker at the meeting :*Vorticity, Rotation and Symmetry (II) - Regularity of Fluid Motion (Vorticité, Rotation et Symétrie (II) - Régularité des Ecoulements)*, Centre International de Rencontres Mathématiques (CIRM) in Luminy, Marsiglia (France).
Title: *"On the global regularity for nonlinear systems of the p-Laplacian type".*

10 Feb 2012 – Seminar at the Department of Mathematics, Ludwig Maximilian University of Munich, Munich (Germany).
Title: *"On the global regularity of solutions of the singular p-Laplacian system".*

28 May–01 Jun, 2012 – Invited Speaker at *Workshop on Navier-Stokes equations*, Department of Mathematics, RWTH Aachen University, Aachen (Germany).
Title: *"Regularity for p-laplacian parabolic systems".*

12–16 Nov 2012 – Invited Speaker at ERC Workshop *New trends in Nonlinear Parabolic Equations*, Parma (Italy).
Title: *"Regularity of solutions to the evolutionary p-Laplacean system.*

4 Dec, 2012 - Seminar at the Institute of Mathematics, Academy of Sciences of the Czech Republic (Prague).
Title: *"Boundary regularity of solutions to the evolutionary p -Laplacean system".*

22 Jan, 2013 - Seminar at the Dipartimento di Matematica e Applicazioni R. Caccioppoli, Università degli Studi di Napoli Federico II, Napoli (Italy).

Title: *"High regularity of solutions to modified p-Stokes equations"*.

21–24 May, 2013 - Invited speaker at the meeting: *Workshop on Navier-Stokes equations*, Department of Mathematics, RWTH Aachen University, Aachen (Germany).
Title: *"A high regularity results of solutions to modified p-Stokes equations"*.

5-8 Nov, 2013 - Invited speaker at the meeting: The 9th Japanese-German International Workshop on Mathematical Fluid Dynamics, Waseda University, Tokyo (Japan).
Title: *"High regularity results of solutions to modified p-Navier-Stokes equations"*.

17–21 Feb 2014 - Invited Speaker at the *International Conference on Recent Advances in PDEs and Applications*, CIRM, Levico Terme (Italy).
Title: *"A maximum modulus theorem for p(t,x)-Laplacean systems"*.

15–17 May, 2014 – Invited Speaker at Assemblea Scientifica del GNFM, Montecatini Terme (Italy).
Title: *"Recenti risultati sul moto di fluidi elettroreologici"*.

29 Sep–3 Oct, 2014 – Invited Speaker at the meeting: *Classical Problems and New Trends in Mathematical Fluid Dynamics*, Università degli Studi di Ferrara (Italy).
Title: *" On the high regularity of solutions to the p-Laplacean boundary value problem in exterior domains.*

4–6 Dec, 2014 – Invited Speaker at *Workshop on PDE's and Biomedical Applications*, Lisbon (Portugal).
Title: *"On the partial regularity of suitable weak solutions: Pointwise estimates and space-time decay"*.

18–20 Dec, 2014 – Invited Speaker at the meeting: *Current problems in fluid-dynamics and non-equilibrium thermodynamics*, Bressanone (Italy).
Title: *"On the partial regularity of suitable weak solutions: Pointwise estimates and space-time decay"*.

13-18 Sep, 2015 - Invited Speaker at the meeting: "Mathflows 2015", Porquerolles (France).
Title: *"On the partial regularity of suitable weak solutions: Pointwise estimates and space-time decay"*.

25–28 March, 2019 - Plenary speaker at COPDESC-Workshop Calculus of Variation and Nonlinear Partial Differential Equations, University of Regensburg (Germany).
Title: *"Some remarks on the partial regularity of a suitable weak solution to the Navier-Stokes Cauchy problem"*.

4–6 Jul, 2022 - Invited speaker at "Portugal-Italy Conference on Nonlinear Differential Equations and Applications", University of Évora (Portugal).

Title: *"Existence of solutions to the Navier-Stokes Cauchy problem in the L^3 setting"*.

28–31 May, 2023 - Invited speaker at "RISM Workshop: Analysis and PDEs", Riemann International School of Mathematics, Varese (Italy).
Title: *"On a parabolic p-Laplacian system of Burgers type"*.

8. Speaker at conferences and workshops

17–19 Feb 2003 – *Assemblea Scientifica G.N.F.M.*, Montecatini Terme (Italy).
Title: *"Sul sistema di Navier-Stokes nel semispazio: comportamento asintotico in (x,t) delle soluzioni"*.

19–25 Jun, 2005 – *XIII International Conference on WAVES AND STABILITY IN CONTINUOUS MEDIA*, Acireale (Italy).
Title: *"On the stability and asymptotic stability of steady solutions of the Navier-Stokes equations in unbounded domains"*.

6–8 Apr, 2006 – *Assemblea Scientifica G.N.F.M.*, Montecatini Terme (Italia).
Titolo del talk: *"Moti fluidi in domini di apertura: alcuni risultati di esistenza e stabilità"*.

28–29 Mar, 2007 – *Incontro sulle EDP nella Meccanica dei Continui*, Università degli Studi di Pisa, Pisa (Italy).
Title: *"Alcuni risultati di esistenza e stabilità di soluzioni delle equazioni di Navier-Stokes in domini di apertura"*.

18–22 Jun, 2007 – *Joint International Meeting UMI–DMV*, Perugia (Italy).
Title: *"Shear thinning viscous flows in cylindrical domains"*.

28–30 Nov, 2007 – *Equazioni alle derivate parziali, dinamica dei fluidi e leggi di conservazione*, Università degli Studi di Pisa (Italy).
Title: *"Sulla regolarità globale per una classe di p-fluidi: il caso $p> 2$"*.

8–10 Sep, 2008 – *Workshop on Mathematical Fluid Dynamics*, Darmstadt (Germany).
Title: *"On the global regularity of stationary shear-thinning flows"*.

21–28 Sep, 2008 – *Navier-Stokes equations: classical and generalized models*, Centro de Giorgi, Pisa (Italy).
Title: *"On the global regularity of steady flows of fluids with shear-dependent viscosity"*.

4–6 Jun, 2009 – *Workshop on Navier-Stokes equations*, Department of Mathematics, RWTH Aachen University, Aachen (Germany).
Title: *"Regularity results for some classes of stationary non-Newtonian fluids"*.

27 Jun-2 Jul, 2010 – *International Summer School on Mathematical Fluid Dynamics*, CIRM, Levico Terme (Italy).
Title: *"On the reduction of PDE problems in the half-space, under the slip boundary condition, to the corresponding problems in the whole space"*.

4–9 Sep, 2011 – *PDE in Mathematical Physics and their Numerical Approximation*, CIRM, Levico Terme (Italy).
Title: *"Global regularity for solutions of nonlinear systems of p-Laplacian type"*.

02–08 Sep, 2012 – *Parabolic and Navier Stokes Equations*, Mathematical Research and Conference Center, Bedlewo (Polland).
Title: *" Higher regularity of solutions to the singular p -Laplacean parabolic system".*

17–21 Jun, 2013 – *XVII International Conference on WAVES AND STABILITY IN CONTINUOUS MEDIA*, Levico Terme (Italy).
Title: *"Some results concerning Stationary shear thinning fluids".*

01–03 May, 2014 –*Regularity theory for elliptic and parabolic systems and problems in continuum mechanicss*, Telč (Czech Republic).
Title: *"High regularity results of solutions to modified p-Navier-Stokes equations.*

26–30 May, 2014 – *8th European Conference on Elliptic and Parabolic Problems*, special session "New trends in Partial Differential Equations and Applications", Gaeta (Italy).
Title: *"On the high regularity of solutions to the p-Laplacean boundary value problem in exterior domains".*

04–06 Oct, 2018 - *Assemblea Scientifica G.N.F.M.*, Montecatini Terme (Italy).

9. Research periods in Italian foreign Institutions

April 2018: Dipartimento di Matematica Applicata "U.Dini", Università degli Studi di Pisa, Pisa (Italy).

September 2013: Mittag-Leffler Institute, Stockholm (Sweden).

December 2012: Academy of Sciences of the Czech Republic, Prague (Czech Republic).

February 2012: Ludwig Maximilian University of Munchen, Department of Mathematics, Munich (Germany).

January 2012: Dipartimento di Matematica Applicata "U.Dini", Università degli Studi di Pisa, Pisa (Italy).

April–May, 2001: Università degli Studi di Ferrara, period of study and research with Prof. V.A. Solonnikov, Ferrara (Italy).

August-October 2000: Pittsburgh University, Department of Mechanical Engineering, Pittsburgh (PA, U.S.).

10. Research Projects

Member of the Research Project GNFM 2004, *Studio di alcune questioni analitiche nella teoria matematica della stabilità di moti fluidi*, Research Unit of Seconda Università degli Studi di Napoli, Caserta (Italy).

Member of PRIN Progect 2007, *Systems of Conservation Laws and Fluid Dynamics: Methods and Applications*, Pisa Research Unit, PI Prof. Stefano Bianchini, SISSA Trieste, Italy.

Member of GNAPMA research project 2008, *Partial differential equations in Fluid Mechanics.*

PI of GNAMPA Research Project 2010, *The Euler equations as limit of the Navier-Stokes*, Pisa Research Unit, Pisa (Italy).

Member of PRIN Project 2012, *Nonlinear hyperbolic partial differential equations, dispersive and transport equations: theoretical and applicative aspects*, Brescia Research Unit, PI Prof. Stefano Bianchini, SISSA Trieste (Italy).

Member of the PRIN Project 2015, *Hyperbolic systems of conservation laws and fluid dynamics: analysis and applications*, Brescia Research Unit, PI Prof. Stefano Bianchini, SISSA Trieste (Italy).

PI GNFM Young Research Project 2017, *Questioni analitiche relative al moto del fluido sinoviale.*

Member of VALERE 2019 Research Project,"Enhancing the Energetic Performance of Self-Sustained Wireless Sensor Networks", Università degli Studi della Campania "Luigi Vanvitelli", Caserta (Italy).

11. Professional Societies

Member of GNFM/INdAM from 2002 to 2006, from 2007 to 2011 member of GNAMPA, from 2012 to present member of GNFM.

Reviewer for Mathematical Reviews (American Mathematical Society).

Member of UMI (Unione Matematica Italiana).

12. Further activities

Referee for several international journals.

Member of the Orientation Committee at Dipartimento di Matematica e Fisica, Università degli Studi della Campania "Luigi Vanvitelli" from 2013 to 2018.

Member of the organizing committee of the Workshop "Partial differential Equations in Fluid Dynamics," Centro De Giorgi, Pisa, February 5-7, 2018.

Member of the Selection Committee for admission to the PhD program in "Mathematics, Physics and Applications to Engineering", Università degli Studi della Campania "Luigi Vanvitelli", cycle XXXV.

Member of the Selection Committee for admission to the PhD program in "Mathematics, Physics and Applications for Engineering", Università degli Studi della Campania "Luigi Vanvitelli", cycle XXXVII.

Member of the Selection Committee of the competition for a post-doc (assegno di ricerca), at Dipartimento di Matematica e Fisica, Università degli Studi della Campania "Luigi Vanvitelli", SSD MAT/07 (March 2020).

Member of the Selection Committee of the selection procedure for no. 1 Researcher (non tenure track), at Dipartimento di Matematica, Università di Pisa, SSD MAT/07 Mathematical Physics (December 2021).

Member of the Selection Committee for the competition for the post-doc (assegno di ricerca), at Dipartimento di Matematica e Fisica, Università degli Studi della Campania "Luigi Vanvitelli", SSD MAT/07 (November 2021).

13. Teaching

Exercise classes

2000–2001 Teaching Assistant, August 28-September 28, 2000, Pittsburgh University, Department of Mechanical Engineering, Pittsburgh (PA, U.S.).

2001–2002 exercise classes for the teaching of Rational Mechanics, Degree in Mathematics, Second University of Naples.

2002–2003 support for the teaching of Mathematical Physics 3, Degree in Mathematics, Second University of Naples.

2003–2004 support for the teaching of Mathematical Physics 3, Degree in Mathematics, Second University of Naples.

2004–2005 exercise classes for the teaching of Mathematics, Degree in Biological Sciences, Second University of Naples.

2005–2006 part of the lessons on the teaching of Mathematical Physics 3, Degree in Mathematics, Second University of Naples.

2004–2005 exercise classes for the teaching of Analysis II, Degree in Mathematics and Mathematics and Computer Science, Second University of Naples.

2006–2007 exercise classes for the teaching of Mathematics, Degree in Chemical Engineering, Electrical Engineering and Energy Engineering, University of Pisa.

2007–2008 exercise classes for the teaching of Mathematics, Degree in Chemical Engineering, Electrical Engineering and Energy Engineering, University of Pisa.

2008–2009 exercise classes for the teaching of Mathematics I, Degree in Chemical Engineering, Electrical Engineering and Energy Engineering, University of Pisa.

2009–2010 exercise classes for the teaching of Mathematics I, Degree in Chemical Engineering, University of Pisa.

2010–2011 exercise classes for the teaching of Mathematics I, Degree in Chemical Engineering, Electrical Engineering and Energy Engineering, University of Pisa.

Courses

A.Y. 2005/2006, Couse “Differential equations of Mathematical Physics”, SSD MAT/07, Degree in Mathematics and Degree in Mathematics and Informatics, MSc in Mathematics, Seconda Università degli Studi di Napoli.

A.Y. 2011/2012, 2012/2013, 2013/2014, 2014/2015: Course “Differential equations of Mathematical Physics”, MSc in Matematics, Seconda Università degli Studi di Napoli.

A.Y. 2015/2016, 2016/2017, 2017/2018: Course “Analysis I”, Degree in Mathematics and Degree in Physics, Università degli Studi della Campania “Luigi Vanvitelli”.

A.Y. 2017/2018, 2018/2019, 2019/2020: Course “Mathematics with Elements of Informatics”, Degree in Pharmacy, Università degli Studi della Campania ”Luigi Vanvitelli”.

A.Y. 2018/2019, 2019/2020, 2020/2021: Course “General Mathematics”, Degree in Architecture, Università degli Studi della Campania ”Luigi Vanvitelli”.

A.Y. 2019/2020, 2020/2021, 2021/2022, 2022/2023: Part of the course “Navier-Stokes Equations”, SSD MAT/07, MSc in Mathematics, Università degli Studi della Campania ”Luigi Vanvitelli”.

A.Y. 2020/2021, 2021/2022, 2022/2023: Course “Mathematics”, Degree in Pharmacy, Università degli Studi della Campania ”Luigi Vanvitelli”.

A.Y. 2021/2022, 2022/2023: Course “Rational Mechanics”, SSD MAT/07, Degree in Mathematics, Università degli Studi della Campania ”Luigi Vanvitelli”.

PhD Courses

2014: “Differential equations of Mathematical Physics”’, SSD MAT/07, PhD Course in “Mathematics, Physics and Applications”, cycle XXIX, between Università degli Studi della Campania ”Luigi Vanvitelli” and Università degli Studi di di Salerno.

2019 and 2020: “Analytical study of non-Newtonian flows”, SSD MAT/07, PhD Course in “Mathematics, Physics and Applications to Engineering, cycle XXXIV and XXXV, Università degli Studi della Campania Luigi Vanvitelli.

Thesis Advisor for MSc in Mathematics

2005: (co-rapporteur of the) thesis “On some issues of stability of motions of fluids in porous media”, Seconda Università degli Studi di Napoli, supervised by Prof. Paolo Maremonti.

2014: Thesis “On the well-posedness of the boundary value problem for power-law fluids”, Seconda Università degli Studi di Napoli.

2015: Thesis “Electroreological fluids: existence and regularity of problem solutions to boundary values”, Seconda Università degli Studi di Napoli.

2017: Thesis “On the Holder regularity of solutions of second-order elliptic equations”, Università degli Studi della Campania “Luigi Vanvitelli”.

2017: Thesis “On the characterization of some spaces of hydrodynamics”, University of Campania ”Luigi Vanvitelli”.

2022: Thesis “Non-Newtonian Fluids: the approach of solenoidal truncations for the existence of weak solutions”, Università degli Studi della Campania “Luigi Vanvitelli”.

Thesis Advisor for a Bachelor's Degree in Mathematics

2020: Thesis “The Cauchy problem for the heat equation”, Università degli Studi della Campania “Luigi Vanvitelli”.

Last updated July, 2023.