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Personal information

Date of birth	11 February 1971
Place of birth	Siracusa (Italy)
Citizenship	Italian
Marital status	married
Titles	*Maturità scientifica* (July 1990) Liceo Scientifico L. Einaudi, Siracusa *Bachelor in Mathematics* 110 cum laude (25 November 1994) Università degli Studi di Catania *PhD in Mathematics* (23 February 2000) Università Catania - Messina - Palermo *Abilitation to associate professor* s. c. 01/A3 (28 March 2017)

Positions

03.1995–12.1995	C.N.R. fellowship, Università degli Studi di Catania
11.1995–10.1999	PhD fellowship, Università degli Studi di Catania
10.03.1999– 31–12–2021	Researcher (SSD MAT/05), Università degli Studi di Catania
01-01.2022–today	Associate professor (SSD MAT/05), Università degli Studi di Catania

Papers from 2013

References

[1] G. Di Fazio, M. S. Fanciullo, P. Zamboni, *L^p estimates for degenerate elliptic systems with VMO coefficients*, Algebra i Analiliz, 25,6, (2013), 24-36, St. Petersburg Math. Journal J. (25) (2014), 909-917.

[2] G. Di Fazio, M. S. Fanciullo, P. Zamboni, *Regularity for a class of strongly degenerate quasilinear operators*, Journal of Diff. Eq., 255, 11, (2013), 3920-3939.

[3] M. Bramanti, M. S. Fanciullo, *BMO estimates for nonvariational operators with discontinuous coefficients structured on Hormander's vector fields on Carnot groups* , Adv. Differential Equations, 18, 9-10, (2013), 955-1004.

[4] G. Di Fazio, M. S. Fanciullo, P. Zamboni, *Hölder regularity for nondivergence form elliptic equations with discontinuous coefficients*, Journal of Math. Analysis and Applications 407, 2, (2013), 545-549.

[5] M. Bramanti, M. S. Fanciullo, $C^{k,\alpha}$*-regularity of solutions to quasilinear equations structured on Hörmander's vector fields*, Nonlinear Analysis: Theory, Methods and Applications, 92, (2013), 13-23.

[6] G. Di Fazio, M. S. Fanciullo, $W^{2,p}_{loc}$ *estimates for Cordes nonlinear operators in the Heisenberg group*, Journal of Math. Analysis and Applications, 411, 2, (2014), 947-952.

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[8] G. Di Fazio, M. S. Fanciullo, P. Zamboni, *Harnack inequality for degenerate elliptic equations and sum operators*, Communications on Pure and Applied Analysis, 14, 6 (2015), 2363-2376.

[9] G. Di Fazio, M. S. Fanciullo, P. Zamboni, *Sum operators and Fefferman - Phong inequalities*, Geometric Methods in PDE's, Springer INdAM Series, Vol. 13 (2015), 111-120.

[10] M. S. Fanciullo, P. D. Lamberti, *On Burenkov's extension operator preserving Sobolev - Morrey spaces on Lipschitz domains* , Math. Nachr., **290** (1), (2017), 37-49.

[11] M. Bramanti, M. S. Fanciullo, *The local sharp maximal function and BMO on locally homogeneous spaces*, Ann. Acad. Sci. Fennicae Math., **42** (1), (2017), n. 1, 453-472.

[12] G. Di Fazio, M. S. Fanciullo, P. Zamboni, *Unique continuation of positive solutions for doubly degenerate quasilinear elliptic equations*, Electronic Journal of Differential Equations, 2017 (2017), no. 158, pp. 1-10.

[13] G. Di Fazio, M. S. Fanciullo, P. Zamboni, *Harnack inequality for strongly degenerate elliptic operators with natural growth*, Proceedings of the International Conference "Two nonlinear days in Urbino 2017", 65-75, Electron. J. Differ. Equ. Conf., 25, Texas State Univ.-San Marcos, Dept. Math., San Marcos, TX, 2018.

[14] G. Di Fazio, M. S. Fanciullo, P. Zamboni, *Local regularity for strongly degenerate elliptic equations and weighted sum operators*, Differential and Integral Equations, Volume 32, Numbers 7-8, July/August 2019, 479-492.

[15] G. Di Fazio, M. S. Fanciullo, P. Zamboni, *Harnack inequality and smoothness for some non linear degenerate elliptic equations*, Minimax Theory and its Applications, Conference "Nonlinear Phenomena: Theory and Applications", Volume 4 (2019), No. 1, 87-99.

[16] G. Di Fazio, M. S. Fanciullo, P. Zamboni, *Harnack inequality and continuity of weak solutions for doubly degenerate elliptic equations*, Mathematische Zeitschrift, **292** (2019) 1325-1336.

[17] G. Di Fazio, M. S. Fanciullo, P. Zamboni, *Unique continuation for degenerate quasilinear equations and sum operators*, Atti della Accademia Peloritana dei Pericolanti - Classe di Scienze Fisiche, Matematiche e Naturali, 98, No. S2, A5 (2020).

[18] G. Di Fazio, M. S. Fanciullo, P. Zamboni, *Nonlinear elliptic equations related to weighted sum operators* Nonlinear Anal. 194 (2020), 111570, 16 pp

[19] G. Di Fazio, M. S. Fanciullo, P. Zamboni, *Degenerate elliptic equations and Sum operators*, New Trends in Analysis and Geometry, Cambridge Scholars Publishing, 2020, 45-80.

[20] G. Di Fazio, M. S. Fanciullo, P. Zamboni, *Boundary Harnack type inequality and regularity for quasilinear degenerate elliptic equations*, Springer INdAM Series, 2021, 46, pp. 139-157.

[21] G. Di Fazio, M. S. Fanciullo, P. Zamboni, *Regularity up to the boundary for some degenerate elliptic operators* , Applicable Analysis, 2022, 101(10), pp. 3563-3575.

[22] G. Di Fazio, M. S. Fanciullo, P. Zamboni, *Boundary regularity for strongly degenerate operators of Grushin type*, EJDE Vol. 2022 (2022), No. 65, pp. 1-16.

Conferences and seminars from 2013

May 2013: comunication: “Hölder Regularity for Non Variational Linear Elliptic Equations with Discontinuous Coefficients”, workshop Existence, Regularity and A Priori Bounds for Differential Problems, Catania.

July 2013: seminar in Dipartimento di Matematica of the University di Padova: “ BMO estimates for non variational operators with discontinuous coefficients in Carnot groups”.

May 2014: comunication, “Schauder regularity for linear and quasilinear equations structured on Hörmander vector fields”, 8th European Conference on Elliptic and Parabolic Problems, Gaeta.

June 2018: invited speaker, “Harnack inequality for degenerate quasilinear elliptic equations", Variational Problems in Geometric Optics and Free Material Design, Banach center, Warsaw.

December 2022: invited speaker: “Harnack inequality and regularity for degenerate quasilinear elliptic equations", Recent advances in direct and inverse problems for PDEs and applications, Roma.

Organization of confererces

Co-organizator of the conference “Equazioni a derivate parziali: aspetti metodologici, modellistica, applicazioni”, Ragusa, July 2005.

Co-organizator of the conference “Existence, Regularity and A Priori Bounds for Differential Problems”, Catania, May 2013.

Co-organizator of the workshop “New trends in PDE's", Catania, May 2018.

Co-organizator of the International Conference in memory of Filippo Chiarenza, "Degenerate Elliptic Operators and Applications", Catania, November 2021.

Research projects

PRIN 2003, *Problemi di esistenza, unicità e regolarità per equazioni e sistemi ellittici e parabolici*, scientific coordinator prof. G. Talenti.

FIRB 2003, *Analisi di equazioni a derivate parziali, lineari e non lineari: aspetti metodologici, modellistica, applicazioni*, scientific coordinator prof. G. Talenti.

PRIN 2006, *Buona positura e proprietà qualitative (regolarità, positività) di soluzioni di equazioni alle derivate parziali*, scientific coordinator prof. A. Cianchi.

PRIN 2008, *Problemi ellittici: di ordine superiore, con condizioni al bordo di tipo Steklov, degeneri, problemi inversi, con dimostrazioni assistite al calcolatore*, scientific coordinator prof. A. Cianchi.

FIR 2014 (University of Catania project) *Equazioni ellittiche degeneri e teoria dei punti critici*, scientific coordinator: prof. G. Di Fazio.

INdAM project 2017, *Equazioni ellittiche e paraboliche a coefficienti singolari*, scientific coordinator: prof G. Di Fazio.

Teaching

Courses from 2013

A.A. 2013-2014: Analisi Matematica II for Electronic Engeneering, Matematica for Agriculture science and technology.

A.A. 2014-2015: Analisi Matematica II for Electronic Engeneering.

A.A. 2015-2016: Analisi Matematica I for Electronic Engeneering, Matematica 1 for Industrial Chemistry.

A.A. 2016-2017: Analisi Matematica II for Computer Engeneering.

A.A. 2017-2018: Analisi Matematica II for Computer Engeneering.

A.A. 2018-2019: Metodi Analitici per l'ingegneria II for Building Construction.

A.A. 2019-2020: Analisi Matematica 2 for Civil Environmental Engineering course.

A.A. 2020-2021: Analisi Matematica 2 for Civil Environmental Engineering course.

A.A. 2021-2022: Analisi Matematica 2 for Civil Environmental and Management Engineering course, Analisi Matematica 2 for Computer Engeneering.

A.A. 2022-2023: Analisi Matematica 2 for Civil Environmental and Management Engineering course, Analisi Matematica 2 for Computer Engeneering.

Catania, 19 December 2022

Maria Fanciullo