CURRICULUM VITAE
DANIELA GIACHETTI

BIRTH DATE: May 25, 1954

PLACE OF BIRTH: Naples (Italy)

ADDRESS:

Dipartimento di Scienze di Base e Applicate per l'Ingegneria
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EDUCATION:

High School Degree, 60/60, liceo classico J.Sannazaro, Naples, 1972.

Laurea (Master) in Mathematics, 110/110 cum laude, University of Naples on June 24, 1976.

Scuola di Perfezionamento (Post graduate degree) in " Scienze Matematiche, Fisiche e Cibernetiche"   (Mathematical, Physical and Cybernetic Science), "cum laude", University of Salerno on December 12, 1979.

Visiting at Laboratoire d'Analyse Numerique de l' Universitè Pierre et Marie Curie (Paris VI) for different short periods from 1979 to 1982.

ACADEMIC POSITIONS:

1991-present: Full Professor in Mathematical Analysis , Engineering Faculty, University of Roma Sapienza.

1987-1991: Full Professor in Mathematical Analysis, Science Faculty, University of L'Aquila.

1986-1987: Associate Professor in Mathematical Analysis, Science Faculty, University of Roma Tor Vergata.

1982 – 1986: Researcher, Science Faculty, University of Salerno and Roma Tor Vergata.

PUBLICATIONS

ARTICLES ON JOURNALS

1) D. Giachetti, E. Mascolo
"Quasi-elliptic problems in Sobolev weighted spaces",   Atti Accad. Naz. Lincei Rend. Cl. Sci. Fis. Mat. Natur. (8) 63 (1977), n. 5, 360-367.

2) D. Giachetti, E. Mascolo
"Quasielliptic problems in Sobolev spaces with a weight", Ricerche Mat. 28 (1979), n.1, 3-37.

3) D. Giachetti, E. Mascolo, R. Schianchi
"Higher order nonlinear partial differential equations in unbounded domains of R^n". Comment. Math. Univ. Carolin. 20 (1979), n. 3, 583-595.

4) D. Giachetti, E. Mascolo
"Spectral properties of a class of quasi-elliptic operators", Ann. Univ. Ferrara Sez. VII (N.S.) 25 (1979), 27-46.

5) D. Giachetti, P.Donato
  "Spectrum property of a class of elliptic linear operators in   unbounded domains and applications to semilinear problems", Ann. Univ. Ferrara Sez. VII (N.S.) 27 (1981), 43--69 (1982).

6) D. Giachetti
"Some unilateral problems of implicit type in unbounded domains". Rend. Mat. (7) 1 (1981), n. 4, 541-558.

7) D. Giachetti, L. Boccardo
"Strongly nonlinear unilateral problems", Appl. Math. Optim. 9 (1982/83), n. 3, 291-301.

8) D. Giachetti
"Optimal control in constrained problems", Boll. Un. Mat. Ital. B (6) 2 (1983), n. 2, 445-468.

9) D. Giachetti, M. Ramaswamy
 "Existence and homogenization for semilinear elliptic equations with noncompact nonlinearity", Nonlinear Anal. 8 (1984), n. 1, 5-15.

10) D. Giachetti
"Some homogenization results for strongly nonlinear equations",   Nonlinear Anal. 8 (1984), n. 10, 1201-1214.

11) D. Giachetti, L.Boccardo
"Some remarks on the regularity of solutions of strongly nonlinear problems, and applications",   Ricerche Mat. 34 (1985), n. 2, 309-323.

12) D. Giachetti, P. Donato
"Quasilinear elliptic equations with quadratic growth in unbounded domains", Nonlinear Anal. 10 (1986), no. 8, 791-804.

13) D. Giachetti, L. Boccardo, P.Drábek, M. Kučera
"Generalization of Fredholm alternative for nonlinear differential operators", Nonlinear Anal. 10 (1986), n. 10, 1083--1103.

14) D. Giachetti, P. Donato
"Unilateral problems with quadratic growth in unbounded domains", Boll. Un. Mat. Ital. A (6) 5 (1986), n. 3, 361-369.

15) D. Giachetti, L. Boccardo
"Stability results for two classes of nonlinear unilateral problems", Numer. Funct. Anal. Optim. 9 (1987), n. 3-4, 447-469.

16) D. Giachetti, L. Boccardo
"Existence results via regularity for some nonlinear elliptic problems".,Comm. Partial Differential Equations 14 (1989), no. 5, 663-680.

17) D. Giachetti, L. Boccardo, J. I. Diaz, F. Murat
"Existence of a solution for a weaker form of a nonlinear elliptic equation", Recent advances in nonlinear elliptic and parabolic problems (Nancy, 1988), 229--246, Pitman Res. Notes Math. Ser., 208, Longman Sci. Tech., Harlow, 1989.

18) D. Giachetti, L. Boccardo, F. Murat
"A generalization of a theorem of H. Brézis & F. E. Browder and applications to some unilateral problems", Ann. Inst. H. Poincaré Anal. Non Linéaire 7 (1990), n. 4, 367--384.

19) D. Giachetti, L. Boccardo, J. I.Diaz, F. Murat.
"Existence and regularity of renormalized solutions for some elliptic problems involving derivatives of nonlinear terms", J. Differential Equations 106 (1993), no. 2, 215--237.

20) D. Giachetti, R. Schianchi
"Minima of some nonconvex noncoercive problems", Ann. Mat. Pura Appl. (4) 165 (1993), 109-120.

21) D. Giachetti, R. Schianchi
"An existence result for a nonconvex problem without upper growth conditions", Rend. Mat. Appl. (7) 14 (1994), no. 3, 503-521.

22) D. Giachetti, F. Leonetti, R. Schianchi
"On the regularity of very weak minima", Proc. Roy. Soc. Edinburgh Sect. A 126 (1996), n. 2, 287-296.

23) D. Giachetti, F. Leonetti, R. Schianchi
"Boundary higher integrability for the gradient of distributional solutions of nonlinear systems", Studia Math. 123 (1997), n. 2, 175--184.

24) D. Giachetti, F. Leonetti, R. Schianchi
"Boundary regularity and uniqueness for very weak ${\scr A}$-harmonic functions". Dedicated to Prof. C. Vinti (Perugia, 1996), Atti Sem. Mat. Fis. Univ. Modena 46 (1998), suppl., 765-769.

25) D.Giachetti, R.Schianchi
"An Agmon-Douglis-Niremberg type result for some non linear equations", Rendiconti dell'Istituto di Matematica dell'Università di Trieste, (1999).

26) D.Giachetti, M.M. Porzio
"Local regularity results for minima of functionals of the Calculus of Variations", Nonlinear Analysis T.M.A vol 39 (2000).

27) D.Giachetti, M.M. Porzio
"Existence results for some non uniformly elliptic equations with irregular data", Journal of Mathematical Analysis and Applications , 257, (2001)

28) D.Giachetti, A.Dall'Aglio, J.P.Puel
"Nonlinear elliptic equations with natural growth in general domains", Annali di Matematica Pura e Applicata (4) 181, (2002), 407-426

29) D.Giachetti, M.M. Porzio
" Elliptic equations with degenerate coercivity": gradient regularity", Acta Mathematica, Academia Sinica 19 (n.2), (2003).

30) D.Giachetti, A.Dall'Aglio, V.De Cicco, J.P.Puel
"Existence of solutions for nonlinear elliptic equations in unbounded domains", Nonlinear Differential Equations and Applications 11 (2004), 431-450.

31) D.Giachetti, A. Dall'Aglio, I. Peral
"Results on parabolic equations related to some Caffarelli-Kohn-Nirenberg inequalities" SIAM J. Math. Anal. Vol.36 n.3 (2004), pp.691-716.

32) D.Giachetti, A. Dall'Aglio, S.Segura de Leòn
"Semilinear parabolic equations with superlinear reaction terms and application to some convection-diffusion problems" (Proceedings of the Conference "Nonlinear Partial Differential Equations", Alushta, Ukraine, Sept 15-21,.2003 ,Ukranian mathematical bulletin, vol I, n.4 (2004), pp. 518-531)

33) D.Giachetti, A. Dall'Aglio, J.P. Puel
" Nonlinear parabolic equations with natural growth in general domains", B.U.M.I, 8B (2005), pp.653-683

34) D.Giachetti, A. Dall'Aglio, C. Leone, S.Segura de Leòn
"Quasi linear parabolic equations with degenerate coercivity having a quadratic gradient term" Ann. I.H.P. AN 23 (2006), 97-126

35) D.Giachetti, A. Dall'Aglio, S.Segura de Leòn
" Nonlinear parabolic problems with a very general quadratic gradient term ", Differential Integral Equations 20 (2007), n.4, 361-396.

36) D.Giachetti, G.Maroscia
"Porous medium type equations with a quadratic gradient term" Bollettino U.M.I. sez.B, 10 (2007), n.3, 753-759.

37) D.Giachetti, M.M. Porzio
"Global Existence for Nonlinear Parabolic Equations with a Damping Term" Comm. Pure Appl. Analysis, 8, n.3 (2009).

38) D.Giachetti, G.Maroscia
" Existence results for a class of porous medium type equations with a quadratic gradient term"   J. Evol. Equ. 8, (2008), n.1, 155-188.

39) D.Giachetti, A. Dall'Aglio, I.Peral, S.Segura de Leòn
"Global existence for slightly super-linear parabolic equations with measure data", J. Math. Anal. Appl. 345 (2008), n. 2, 892-902.

40) D.Giachetti, A. Dall'Aglio, S.Segura de Leòn
"Global existence for parabolic problems involving the p-Laplacian and a critical gradient term", Indiana University Mathematics Journal, 58, (2009), n.1, 1-48.

41) D.Giachetti, L.Boccardo
"A nonlinear interpolation result with applications to the summability of minima of some integral functionals", Discrete and Continuous Dynamical Systems Series B, 11, (2009), n.1, 31-42.

42) D.Giachetti, F.Murat
"Elliptic problems with lower order terms having singular behaviour", Boll. U.M.I. (9), II, (2009), 349-370.

43) D.Giachetti, M.M. Porzio
" Existence and blow-up results for fast diffusion equations with nonlinear sources" Advanced Nonlinear Studies 10 (2010), 131-160

44) D. Giachetti, B.Abdellaoui, I. Peral, M.Walias
 "Elliptic problems with nonlinear terms depending on the gradient and singular on the boundary", Nonlinear Analysis TMA 74 (2011), 1355-1371.

45) D. Giachetti, S. Segura de Leon
"Quasilinear stationary problems with a quadratic gradient term having singularities" Journal of the London Mathematical Society 2012; doi: 10.1112/jlms/jds014

46) D. Giachetti, P.Donato
"Homogenization of some singular nonlinear elliptic problems", International Journal of Pure and Applied Mathematics, 73, (2011), 349-378.

47) D. Giachetti, B.Abdellaoui, I.Peral, M.Walias
Elliptic problems with nonlinear terms depending on the gradient and singular on the boundary: Interaction with a Hardy-Leray potential Discrete and Continuous Dynamical Systems-Series A, 34, no. 5,(2014) 1747-1774, doi:10.3934/dcds.2014.34.1747

48) D.Giachetti, F.Petitta, S.Segura de Lèon
 "Elliptic equations having a singular quadratic gradient term and a changing sign datum", Communications on Pure and Applied Analysis", 11, (2012), 1875-1895.

49) D.Giachetti, F.Petitta, S.Segura de Lèon
"A priori estimates for elliptic problems with a strongly singular gradient term and a general datum", Differential and Integral Equations, 26, Number 9/10 (2013), 913-948.

50) I. de Bonis, D.Giachetti
" Singular parabolic problems with possibly changing sign data", accepted on Discrete and Continuous Dynamical Systems-Series B, (2014), 19, no. 7, 2047- 2064, doi:10.3934/dcdsb.2014.19.2047

51) I. de Bonis, D.Giachetti
"Nonnegative solutions for a class of singular parabolic problems involving p-laplacian", Asymptotic Analysis, (2015), 91, no. 2, 147-183, doi: 10.3233/ASY-141257.

52) D. Giachetti, P.J. Martinez-Aparicio and F. Murat
"A semilinear elliptic equations with a mild singularities at u = 0: existence and homogeneization", J. Math. Pures et Appl., 107, (2017), pp. 41-77, http://dx.doi.org/10.1016/j.matpur.2016.04.007

53) D. Giachetti, P. J. Mart\'inez-Aparicio and F. Murat
"Advances in the study of singular semilinear elliptic problems",
Trends in differential equations and applications, ed. by F. Ortegon Gallego, V. Redondo Neble and J.R. Rodriguez Galvan. SEMA-SIMAI Springer Series {8}, Springer International Publishing Switzerland, (2016), 221-241.

54) D. Giachetti, P. J. Martinez-Aparicio and F. Murat
"Definition, existence, stability and uniqueness of the solution to a semi-linear elliptic problem with a strong singularity at u = 0", Annali della Scuola Normale Superiore di Pisa, Classe di Scienze (in press), DOI Number: 10.2422/2036-2145.201612_008

55) D. Giachetti, P. J. Martinez-Aparicio and F. Murat
"Homogenization of elliptic problems with a strong singularity at u = 0", J. Funct. Anal., 274, (2018), pp. 1747-1789, https://doi.org/10.1016/j.jfa.2017.11.007

56) D. Giachetti, P. Donato
"Existence and homogenization for a singular problem through rough surfaces",
SIAM J. Math. Anal. 48-6 (2016), 4047-4086
http://dx.doi.org/10.1137/15M1032107

57) D. Giachetti, B.Vernescu, M.A.Vivaldi
"Asymptotic analysis of singular problems in perforated cylinders", Differential and Integral Equations, (2016), 29, n.5/6, 531-562.

58) D. Giachetti, V. De Cicco and S. Segura de Leòn
"Elliptic problems involving the 1-Laplacian and a singular lower order term", submitted.

59) D. Giachetti, V. De Cicco, F. Oliva, F. Petitta
"The Dirichlet problem for singular elliptic equations with general nonlinearities", submitted.

60) D. Giachetti, P. J. Martinez-Aparicio and F. Murat
"On the definition of the solution to a semilinear elliptic problem with a strong singularity at u=0" Nonlinear Analysis (in press).

PROCEEDINGS

1) D. Giachetti, R. Schianchi (1998). Higher integrability for the gradient of the solutions of a nonliner Neumann problem. In: "First Pacific Rim Conference on Mathematics" Hong-Kong, january 19-23, 1998

    2) D. Giachetti, M.M. Porzio (1998). Regolarità locale per minimi di funzionali del Calcolo delle Variazioni. In: S.I.M.A.I., IV Congresso Nazionale di Matematica Applicata e Industriale, june 1-5 , 1998

    3) D. Giachetti, A. Dall'Aglio, S. Segua de Lèon (2003). Semilinear parabolic equations with superlinear reaction terms and application to some convection-diffusion problems. In: NPDE- Ucraina 2003

4) D. Giachetti, P. Donato (2011). Quasilinear singular elliptic equations. In: Evolution Equations and Materials with Memory ATTI DEL CONVEGNO. Roma, july 12-14 , 2010, CASA EDITRICE UNIVERSITA` LA SAPIENZA

5) D. Giachetti, P. Donato, F. Petitta, S. Segura de Leon (2013). Singular problems: existence and homogenization results. In: E´quations aux de´rive´es partielles et leurs applications-Actes du colloque Edp-Normandie. Le Havre 2012. p. 61-67, Federation Normandie-Mathematiques Editions, ISBN: 9782954122113, Le Havre

MONOGRAPH

V. De Cicco, D. Giachetti
Metodi matematici per l'ingegneria.
Esculapio Bologna

RECENT TEACHING ACTIVITY (2007-2016)

2007-2016

Courses of "Analisi Matematica II" and "Metodi Matematici per l'Ingegneria" (Engineering Faculties, Roma Sapienza).

RECENT RESEARCH ACTIVITY (2007-2016).

We studied some models of propagation phenomena in bounded domains, which involve stationary and evolution problems with lower order terms $h(u)|Du|^2$, depending on the solution u and on its gradient. The main feature is that the function h(s) is singular at some point.

In particular, we considered (in collaboration with Sergio Segura de Leon, University of Valencia) the stationary problem, with Dirichlet boundary conditions, in the case that the singularity is placed in a point different from zero (say in u=1) and the previous function h(s) is summable near the singularity (see [1])

The case where the singularity is placed in u=0 was already studied (see, for examples [2], [3] and [4] and references therein), for non negative data f(x): in that papers, existence and non existence results are obtained, depending on the strength of the singularity and on the sign and size of the lower order term. An essential tool is the strong maximum principle.

In [8] we extended some of these results dealing with singularity placed at u=0 to the case where the datum f(x) changes its sign; in the quoted paper, the function h(s) which appears in the term $h(u) |Du|^2$ is summable near the singularity.

This problem is not at all a simple technical matter: indeed, in the case where f(x) can change sign, the solution u can vanish inside the domain (and actually this occurs in some situation), due to the fact that we cannot apply maximum principle.

Therefore, first of all, we have to understand and define carefully the meaning of solution, giving sense to the gradient term on the singularity.

If the growth of the lower order term near the singularity is very strong, (i.e. when the function h(s) is not summable near the singularity) and the datum f(x) can change its sign the problem of existence of solutions is still an open one and it seems to be a very difficult task.

Moreover we obtained (in collaboration with M.Michaela Porzio, University of Roma Sapienza) existence results for global solutions to parabolic equation of fast diffusion type: the problem involves a reaction term g(u) having slightly superlinear growth and measure data. The complementary case has also been considered, getting a blow-up in finite time result (see [5]).

In the paper [6], in collaboration with Ireneo Peral, Boumediene Abdellaoui e Magdalena Walias, Universidad Autonoma di Madrid, we studied a model of growth in porous media, starting by the stationary case $\Delta(u^m)=|Du|^q+f$ with Dirichlet boundary conditions. We got existence of distributional solutions and regularity results, depending on the values of the parameters $m>0$ and $1<q\geq 2$ and on the summability of the datum f.

Moreover, we studied, in collaboration with Patrizia Donato, University of Rouen, the asymptotic behaviour of sequences of solutions to quasi linear Dirichlet problems involving lower order terms singular in the u variable at u=0. The terms grow quadratically in the gradient and the sequences of the matrices in the principal parts H-converge. (see [7]).

Recently we studied existence for singular semilinear elliptic problems (i.e. the lower order singular term depends only on the solution u) and homogeneization of this kind equations in perforated domains, in collaboration with Francois Murat (Paris VI) and Pedro Martinez Aparicio (Cartagena, Spain) (see [9], [12], [13]) and with B. Vernescu (WPI, USA) and M.A. Vivaldi (Sapienza Roma, Italy) (see [14]). Homogenization of singular problems posed in domains having inside oscillating interfaces is studied in [15].

Existence of non negative solutions for parabolic singular problems has been recently considered in [10], [11].

Existence of non negative solutions for Dirichlet problems with 1-Laplacian principal part and singular lower order terms has been investigated in [16].

References

[1] D. Giachetti, S. Segura de Leon: Quasilinear stationary problems with a quadratic gradient term having singularities, Journal of the London Mathematical Society, doi: 10.1112/jlms/jds014.

[2]L. Boccardo: Dirichlet problems with singular and gradient quadratic lower order terms ESAIM Control Optim. Calc. Var 14 (2008), 411-426.

[3 D. Giachetti, F. Murat: An elliptic problem with a lower order term having singular behaviour", Boll. Unione Mat. Ital. (9) 2 (2009), 349-370.

[4] D. Arcoya, J. Carmona, T. Leonori, P.J. Martinez-Aparicio, L. Orsina and F. Petitta: Existence and nonexistence of solutions for singular quadratic quasilinear equations, J. Differential Equations, 246 (2009), 4006-4042.

[5] D.Giachetti, M.M. Porzio: Existence and blow-up results for fast diffusion equations with nonlinear sources, Advanced Nonlinear Studies 10 (2010), 131-160

[6] B.Abdellaoui, D. Giachetti, I.Peral, M.Walias: Elliptic problems with nonlinear terms depending on the gradient and singular on the boundary, Nonlinear Analysis TMA 74 (2011), 1355-1371.

[7] D. Giachetti, P.Donato: Homogenization of some singular nonlinear elliptic problema, International Journal of Pure and Applied Mathematics, 73, (2011), 349-378.

[8] D.Giachetti, F.Petitta, S.Segura de Lèon : Elliptic equations having a singular quadratic gradient term and a changing sign datum, Communications on Pure and Applied Analysis", 11, (2012), 1875-1895.

[9] D. Giachetti, P.J. Martinez-Aparicio and F. Murat
"A semilinear elliptic equations with a mild singularities at u = 0: existence and homogeneization", J. Math. Pures et Appl., 107, (2017), pp. 41-77,

[10] I. de Bonis, D.Giachetti
"Singular parabolic problems with possibly changing sign data", accepted on Discrete and Continuous Dynamical Systems-Series B, (2014),19, no. 7, 2047- 2064.

[11] I. de Bonis, D.Giachetti
"Nonnegative solutions for a class of singular parabolic problems involving p-laplacian", Asymptotic Analysis, (2015), 91, no. 2, 147-183, doi: 10.3233/ASY-141257.

[12] D. Giachetti, P.J. Martinez-Aparicio and F. Murat
"Definition, existence, stability and uniqueness of the solution to a semi-linear elliptic problem with a strong singularity at u = 0", to appear on Annali della Scuola Normale Superiore di Pisa, Classe di Scienze.

[13] D. Giachetti, P.J. Martinez-Aparicio and F. Murat
"Homogenization of elliptic problems with a strong singularity at u = 0", preprint.

[14] D. Giachetti, B.Vernescu, M.A.Vivaldi
"Asymptotic analysis of singular problems in perforated cylinders", Differential and Integral Equations, (2016), 29, n.5/6, 531-562.

[15] D. Giachetti, P. Donato
"Existence and homogenization for a singular problem through rough surfaces",
SIAM J. Math. Anal. 48-6 (2016), 4047-4086

http://dx.doi.org/10.1137/15M1032107

[16] D. Giachetti, V. De Cicco and S. Segura de Leòn
"Elliptic problems involving the 1-Laplacian and a singular lower order term",
submitted.

FURTHER TASKS.

-Reviewer for Mathematical Review.

-Referee for several international journals.

-Supervisor PHD thesis Dottorato Modelli Matematici per l'Ingegneria, Elettromagnetismo e Nanoscienze, Università di Roma Sapienza, (student Ida de Bonis).

-Co-supervisor PHD thesis, Doctorat en Mathematiques appliquees, Universitè de Rouen (France), (student Imen Chourabi, febbraio 2014).

-Supervisor of the fellowship "Degenerazioni e singolarità nelle equazioni alle derivate parziali" (student Cristina Pocci, 2015)

–Director of the PHD School " Modelli e Metodi Matematici per la Tecnologia e la Società" of the University of Roma Sapienza   (2001-2014).

- Responsible of local research projects for the Italian Research Ministry (2001-2009).

- Responsible of the research project 2011 "Processi di diffusione in materiali compositi e strutture irregolari ", University of Roma Sapienza.

-President of the Scientific Committee of the Department Scienze di Base e Applicate per l'Ingegneria **(**since 2011).

-Member of the board of the PHD MATHEMATICAL MODELS FOR ENGINEERING, ELECTROMAGNETICS AND NANOSCIENCES, SAPIENZA, ROME.

-PHD course "Elliptic equation: general existence results" (PHD MATHEMATICAL MODELS FOR ENGINEERING, ELECTROMAGNETICS AND NANOSCIENCES, SAPIENZA, ROME, 12 hours, july 2016).

-Member of several committees for Full Professor, Associated Professor and Researcher (MAT/05).

-Conferences as invited speakers (2007-2017)

1) General lower order terms depending on u and |Du| in some elliptic
and parabolic problem ("Recent Trends in Nonlinear Differential Equations",
University of Salamanca, Spain, February 12-16, 2007).

2) Alcuni problemi ellittici e parabolici con termini di ordine inferiore b(x,u,Du)
(University of Cassino, Italy, December 10, 2007).

3) Elliptic problems with first order terms having singular behaviour
(University of Valencia, Spain, May 5, 2008).

4) Elliptic problems with lower order terms having singular behaviour
(Rome, Differential Modeling in Applied Sciences, SIMAI 2008).

5) Existence and blow-up results for some evolution equations with nonlinear sources
(6th European Conference on Elliptic and Parabolic Problems, Gaeta, Italy, may
2009).

6) Quasilinear singular elliptic equations (Evolution Equations and Materials with
Memory Rome, july 12-14, 2010).

7) Quasilinear elliptic equations with singular terms (New function spaces in pde's
and harmonic analysis Naples, Italy may 31 –june 4, 2011).

8) Some singular elliptic problems: existence and homogenization (Laboratoire
Jacques-Louis Lions, Université Paris 6, March 12, 2012).

9) Global existence and blow-up results for some evolution equations with nonlinear
lower order terms, (9th AIMS International Conference on Dynamical Systems,
Differential Equations and Applications, Orlando, Florida, July 1-5, 2012).

10) Singular problems : existence and homogenization results (2012 EDP Normandie,
Le Havre October 23-24, 2012)

12) Problems with singularity in the u variable: non negative solutions, existence and
homogenization results (Dipartimento di Matematica G. Castelnuovo, Università di
Roma Sapienza, february 20, 2014).

13) Existence and homogenization for a singular problem through rough surfaces (8th European Conference on elliptic and parabolic problems, Gaeta, may 26-30, 2014).

14) Elliptic and parabolic problems with singularity in the u variable (10th AIMS International Conference on Dynamical Systems, Differential Equations and Applications, Madrid, July 7-11, 2014).

15) Problems with singularity in the u variable: nonnegative solutions (Workshop on Calculus of Variation and Partial Differential Equations, Padova, November 13-14, 2014).

16) Homogenization of semilinear elliptic problems singular at u=0 (XXIV Congress on Differential Equations and Application, XIV Congress on Applied Mathematics, Cadiz (Spain), June 8-12 2015).

17) Homogenization of elliptic problems with singular source terms (International Workshop on Partial Differential Equations, Cebu (Philippine), January 10-15 2016).

18) Homogenization of some singular semilinear elliptic problems, (Calculus of Variations and Nonlinear Partial Differential Equations, Benevento, November 16-18 2016).

19) Singular problems in the u variable:laplacian principal part and strong singularity, 1-laplacian principal part and mild singularity, (Roma Caput PDE, Rome, January 23-26, 2017).

-Organizing activity: workshop and courses (2007-2016)

-Workshop "Homogenization: Flows in Collapsing Domains and Composite Materials", Rome, June 25-27, 2012 (Member of the Organizing Committee)

-PHD School "Metodi e Modelli Matematici per la Tecnologia e la Società", Department "Scienze di Base e Applicate per l'Ingegneria", University of Roma Sapienza:
Prof. Serra Capizzano (Università of Insubria) course on "Approssimazione matriciale, precondizionamento e sistemi lineari di grandi dimensioni", spring 2009.

-PHD School "Metodi e Modelli matematici per la Tecnologia e la Società", Department "Scienze di Base e Applicate per l'Ingegneria", University of Rome Sapienza:
Prof. Mauro Fabrizio (University of Bologna) course on "Transizioni di fase", november 2009.

-Workshop "Elliptic and parabolic equations and systems"
Naples, June 18-20, 2008 (Member of the Organizing Committee)

-PHD School "Metodi e Modelli Matematici per la Tecnologia e la Società",
Department "Scienze di Base e Applicate per l'Ingegneria", University of Rome
Sapienza:
Prof. Renzo Ricca (University of Milano Bicocca) course "A mini-course on
structural complexity", march 2008.

-PHD School "Metodi e Modelli Matematici per la Tecnologia e la Società",
Department "Scienze di Base e Applicate per l'Ingegneria", University of Rome
Sapienza:
Prof. Michel Chipot (University of Zurich): course on "Some issues on elliptic
problems", february 2008.

Research projects (2007-2016)

2007
-Responsible of the research project AST "Equazioni ellittiche e paraboliche e
minimi di funzionali: esistenza di soluzioni e proprietà qualitative".
-Member of the university research project "Modelli matematici per campi e corpi
altamente irregolari".

2008
-Responsible of the research project AST "Problemi non lineari: modelli di diffusione
e minimi di energie".
-Member of the university research project "Forme di energia degeneri e singolari".
-Member of the project PRIN 2008 "Equazioni ellittiche e paraboliche con dati
irregolari".

2009
- Responsible of the research project AST "Problemi non lineari: modelli di
diffusione e minimi di energie".
-Member of the University research project "Strutture anisotrope e altamente
disomogenee".

2010
-Member of the University research project "Equazioni differenziali ellittiche e
paraboliche non lineari".
-Member of the research project MTM2010-18218 (Spagna),

"Estudio de problemas no lineales relacionados confenomenos de difusion, crecimiento y propagation".

2011
-Responsible of the University research project 2011 "Processi di diffusione in materiali compositi e strutture irregolari ".