Curriculum: Piero Montecchiari

Current position: Associate Professor, Università Politecnica Delle Marche, Ancona.

Academic qualifications:

• 1989 Laurea (Physics), Univ. Bologna. 110/110 laude.
• 1992 Magister Philosophiæ (Mathematics), SISSA, Trieste. 30/30 laude
• 1994 Doctor Philosophiæ (Mathematics), SISSA, Trieste.
• 2017 National Scientific qualification as Full Professor in Mathematical Analysis.

Fellowship and funding:

•1995 one month research fellow "Human Capital and Mobility" CEREMADE, Paris Dauphine.
•1996 One year CNR research fellow CEREMADE, Paris Dauphine
•1998 two months CNR-NATO research fellow at the Dept. Math., Univ. Wisconsin.
•2008 One year research project funded by GNAMPA "Soluzioni intere per equazioni semilineari ellittiche".
•2018 one year research fellow MIUR

Invited Talks. Lectures.

•1994 talk at workshop "Sistemi Hamiltoniani, equazioni alle derivate parziali,
fluidodinamica, processi diffusivi", L'Aquila
•1994 8 hours lectures at the School "on Variational and Local Methods in the Study of Hamiltonian Systems", ICTP, Trieste.
•1994 Seminar "Chaos in the Duffing equation, the Variational approach" Tech. Univ. Budapest
•1995 Seminar "Orbite omocline ed per perturbazioni di sistemi di Duffing", Univ. Trento
•1995 Seminar "Homoclinic orbits for almost periodic second order Hamiltonian Systems", CEREMADE
•1996 8 hours lectures "Multibump solutions for Duffing like systems", Univ. Tunis
•1996 Seminar on "Homoclinic and almost periodic solutions for a class of almost periodic second order systems", CEREMADE, Paris
•1998 talk at workshop "Variational Methods and Differential Equations of Mathematical Physics", SNS Pisa
•1998 Seminar "Stationary solutions for a class of non autonomous Allen Cahn type equations", Madison, Wisconsin, USA
•1998 Seminar "Molteplicita' di soluzioni in RN per equazioni semilineari el littiche nel caso non autonomo", Roma III
•2001 talk at workshop "Thematic Programme 2001 Nonlinear Partial Differential Equations", Vancouver
•2003 talk at workshop "Giornate nonlineari", Roma, La Sapienza
•2004 Seminar on "Soluzioni intere per equazioni di tipo Allen Cahn", Univ. Torino
•2009 talk at workshop "6th European Conference in Elliptic and Parabolic Problems" Gaeta
•2010 talk at workshop "Recent Advances on de Giorgi's Conjecture and the Study of Entire Solutions of Nonlinear Scalar Equations" Banff (CA)
•2011 talk at workshop Variational and perturbative methods for nonlinear differential equations". Venezia
•2011 talk at workshop "Calibrations and Laminations" Freiburg (G)
•2012. talk at workshop "Topics on Nonlinear Partial Differential Equations" Postech (SK)
•2012 8 hours Lectures, Hunan University, Changsha (Cina)
•2015 Talk at workshop "Nonlinear Meeting in Turin 2015", Torino
•2015 Talk at Workshop: "Variational and Topological methods in the study of nonlinar problems." Besançon (FR)
•2018 Talk at workshop "Variational Methods in Analysis, Geometry and Physics" SNS Pisa

Organization of Schools and workshops
•2012 organization of the international school "Variational and Geometric methods in PDE"

Publications

1. P. Montecchiari, Multiplicity of homoclinic solutions for a class of asymptotically periodic second order Hamiltonian systems, Atti Accad. Naz. Lincei, Cl. Sci. Fis. Mat. Nat., IX. Ser., Rend. Lincei, Mat. Appl. 4, No.4, 265-271 (1993)

2. P. Caldiroli, P. Montecchiari, Homoclinic orbits for second order Hamiltonian systems with potential changing sign, Commun. Appl. Nonlinear Anal. 1, No.2, 97-129 (1994).

3. P. Montecchiari, Existence and multiplicity of homoclinic solutions for a class of asymptotically periodic second order Hamiltonian systems, Ann. Mat. Pura Appl., IV. Ser. 168, 317-354 (1995)

4. P. Caldiroli, P. Montecchiari, M. Nolasco, ASYMPTOTIC BEHAVIOR FOR A CLASS OF MULTIBUMP SOLUTIONS TO DUFFING–LIKE SYSTEMS, Variational and local methods in the study of Hamiltonian systems. World Scientific. 137-145 (1995) Ambrosetti, A. et al. (ed.)

5. P. Montecchiari, Multiplicity results for a class of Semilinear Elliptic Equations on R^m, Rend. Semin. Mat. Univ. Padova 95, 217-252 (1996).

6. S. Abenda, P. Caldiroli, P. Montecchiari, Multibump solutions for Duffing-like systems, Rend. Ist. Mat. Univ. Trieste 28, No.1-2, 115-143 (1996)

7. P. Montecchiari, M. Nolasco, Multibump solutions for perturbation of periodic second order Hamiltonian systems, Nonlinear Anal., Theory Methods Appl. 27, No.12, 1355-1372 (1996)

8. V. Coti Zelati, P. Montecchiari, M. Nolasco, Multibump homoclinic solutions for a class of second order, almost periodic Hamiltonian systems, NoDEA, Nonlinear Differ. Equ. Appl. 4, No.1, 77-99 (1997)

9. P. Montecchiari, M. Nolasco, S. Terracini, Multiplicity of homoclinics for a class of time recurrent second order Hamiltonian systems,
 Calc. Var. Partial Differ. Equ. 5, No.6,
523-555 (1997)

10. V. Coti Zelati, P. Montecchiari, M. Nolasco, Almost periodic solutions for a class of Duffing like systems, Differ. Integral Equ. 11, No.4, 623-640 (1998).

11. F. Alessio, P. Caldiroli, P. Montecchiari, Genericity of the existence of infinitely many solutions for a class of semilinear elliptic equations in R^N, Ann. Sc. Norm. Super. Pisa, Cl. Sci., IV. Ser. 27, No.1, 47-68 (1998)

12. F. Alessio, P. Caldiroli, P. Montecchiari, On the existence of homoclinic orbits for the asymptotically periodic Duffing equation, Topol. Methods Nonlinear Anal. 12, No.2, 275-

292 (1998)

13. M.L. Bertotti, P. Montecchiari, Connecting orbits for some classes of almost periodic Lagrangian systems, J. Differ. Equations 145, No.2, 453-468, (1998)

14. F. Alessio, P. Montecchiari, Multibump solutions for a class of Lagrangian systems slowly oscillating at infinity,
AIHP Anal. Non Lineaire 16, 1, 107-135 (1999)

15. F. Alessio, M.L. Bertotti, P. Montecchiari, Multibump solutions to possibly degenerate equilibria for almost periodic Lagrangian systems, Z. Angew. Math. Phys. 50, No.6, 860- 891 (1999)

16. P. Montecchiari, M. Nolasco, S. Terracini, A global condition for periodic Duffing-like equations,
Trans. Am. Math. Soc. 351, No.9, 3713-3724 (1999)

17. F. Alessio, P. Caldiroli, P. Montecchiari, Genericity of the multibump dynamics for almost periodic Duffing-like systems, PROCEEDINGS OF THE ROYAL SOCIETY OF EDINBURGH. SECTION A. MATHEMATICS 129A, 5, 885- 901 (1999)

18. F. Alessio, C. Carminati, P. Montecchiari, Heteroclinic motions joining almost periodic solutions for a class of Lagrangian systems, Discrete Contin. Dyn. Syst. 5, No.3, 569-584 (1999)

19. F. Alessio, P. Caldiroli, P. Montecchiari, On the existence of infinitely many solutions for a class of semilinear elliptic equations in R^N, ATTI DELLA ACCADEMIA NAZIONALE DEI LINCEI. RENDICONTI LINCEI. MATEMATICA E APPLICAZIONI, 9,3, 157-165 (2000)

20. F. Alessio, L. Jeanjean, P. Montecchiari, Stationary layered solutions in R^2 for a class of non autonomous Allen-Cahn equations, Calc. Var. Partial Differ. Equ. 11, No.2, 177-202, (2000)

21. F. Alessio, P. Caldiroli, P. Montecchiari, Infinitely many solutions for a class of semilinear elliptic equations in R^N, Boll. Unione Mat. Ital. Sez. B Artic. Ric. Mat. (8) 4, no. 2, 311–317, (2001)

22. F. Alessio, L. Jeanjean, P. Montecchiari, Existence of infinitely many stationary layered solutions in R^2 for a class of periodic Allen Cahn Equations.
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23. F. Alessio, V. Coti Zelati, P. Montecchiari, Chaotic behaviour of rapidly oscillating Lagrangian systems, Discrete Contin. Dyn. Syst. 10, No. 3, pp. 687–707 (2004)

24. F.Alessio, P. Montecchiari, Entire solutions in $\mathbb{R}2$ for a class of Allen-Cahn equations,
ESAIM: COCV, Vol. 11, pp. 633-672 (2005)

25. F. Alessio, P. Montecchiari, Multiplicity of entire solutions for a class of almost periodic Allen-Cahn type equations, Advanced Nonlinear Studies, 5, pp. 515-549 (2005)

26. F. Alessio, P. Montecchiari, Brake orbits type solutions to some class of semilinear elliptic equations, Calc. Var. Partial Differ. Equ. 11, No. 30, 1, pp. 51-83 (2007)

27. F.Alessio, A. Calamai, P. Montecchiari, Saddle type solutions to a class of semilinear elliptic equations, Advances in Differential Equations, 12, pp. 361–380 (2007)

28. F. Alessio, P. Montecchiari, Layered solutions with multiple asymptotes for non autonomous Allen–Cahn equations in R^{3}, Calculus of Variations and PDE's, vol. 46, Issue 3-4 pp 591-622 (2013)

29. F. Alessio, P. Montecchiari, Saddle solutions for bistable symmetric semilinear elliptic equations, Nonlinear Differential Equations and Applications, vol. 20, Issue 3 (2013), pp 1317-1346

30. F. Alessio, P. Montecchiari, An energy constrained method for the existence of layered type solutions of NLS equations, Ann. I.H. Poincarè -AN, vol. 31, Issue 4 (2014), pp. 725-749

31. F. Alessio, P. Montecchiari, Multiplicity of layered solutions for Allen-Cahn systems with symmetric double well potential, J. Differential Equation 257 (2014), pp. 4572-4599

32. P. Montecchiari, P.H. Rabinowitz (2016) On the existence of multi-transition solutions for a class of elliptic systems, Ann. I.H. Poincarè -AN, vol. 33, p. 199-219,

33. F. Alessio, C. Gui, P. Montecchiari (2016). Saddle solutions to Allen-Cahn equations in doubly periodic media, INDIANA UNIV. MATH. JOURNAL, vol. 65, p. 199-221,

34. F. Alessio, G. Autuori, P. Montecchiari (2016), SADDLE TYPE SOLUTIONS FOR A CLASS OF REVERSIBLE ELLIPTIC EQUATIONS, ADVANCES IN DIFFERENTIAL EQUATIONS, vol. 21, p. 1-30

35. J. Byeon, P. Montecchiari, P.H. Rabinowitz (2016). A DOUBLE WELL POTENTIAL SYSTEM. ANALYSIS & PDE, vol. 9, p. 1737-1772

36. F. Alessio, P. Montecchiari (2017), Brake orbit solutions for semilinear elliptic systems with asymmetric double well potential, JOURNAL OF FIXED POINT THEORY AND ITS APPLICATIONS, Volume 19, Issue 1, pp 691–717

37. P. Montecchiari, P.H. Rabinowitz (2018), Solutions of mountain pass type for double well potential systems, CALCULUS OF VARIATIONS AND PARTIAL DIFFERENTIAL EQUATIONS, 57: 114, (2018)

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41. *Alessio, Francesca Gemma; Montecchiari, Piero; Sfecci, Andrea*, SADDLE SOLUTIONS FOR A CLASS OF SYSTEMS OF PERIODIC AND REVERSIBLE SEMILINEAR ELLIPTIC EQUATIONS, NETWORKS AND HETEROGENEOUS MEDIA vol. 14 (3) pp.569-589 (2019)

BOOKS

1. F. Alessio, P. Montecchiari (2012). Note di Analisi Matematica Uno. BOLOGNA:SOCIETA' EDITRICE ESCULAPIO

2. Francesca Gemma Alessio, Chiara de Fabritiis, Cristina Marcelli, Piero Montecchiari (2016). MATEMATICA ZERO - Per i precorsi e i test d'ingresso a Ingegneria e Scienze. p. 1-207, Milano:Pearson Italia