Curriculum vitae et studiorum of Dr. Laura Pezza

PERSONAL DATA:
  Name: Laura Pezza.
  Place of birth: Frosinone (FR), ITALY.
  Date of birth: November 19-th, 1966.
  Civil status: married with two children.

EDUCATION:
  • Doctor of Philosophy (Ph. D.) at the Department of Mathematics "U. Dini", University of Florence, ITALY, on November, 1996.
  • "Laurea di Dottore" degree in Mathematics *Magna cum Laude* at the Department of Mathematics "G. Castelnuovo", University of Rome "La Sapienza", on July, 1991.
  • "Diploma di maturità classica" (with 60/60 and a scolarship) at "Liceo Classico Statale N. Turriziani" of Frosinone (FR), ITALY. July, 1985.
  • Spoken languages: Italian, French, English.
  • Computer competences: knowledge and use of the programming languages Fortran, Mathematica and Matlab, and of the operating systems MSDos, Unix and Mac OS.

PROFESSIONAL ACTIVITIES:
  • Since October 1997 she has been Assistant Professor of Mathematics (SSD MAT/08 - "Numerical Analysis") at the Engineering Faculties of the University of Rome "La Sapienza".
  • In 1994 she has been Research Assistant at the Department of Mathematics of Oregon State University, USA.

RESEARCH INTERESTS:
The research interests of Laura Pezza include Mathematical Physics, Mathematical Modelling, Numerical Analysis and Coding Theory. In particular, she is interested in stability problems relatives to newtonian and not-newtonian fluids, Bingham fluids, free frontier problems, Hele-Shaw problems, approximation theory by S-plines, construction of new refinement functions and wavelets classes on the real axes and its finite intervals, on their approssimation properties and on their applicaitons in several Numerical Analisys areas, such as filters analisys, curves and surface reconstruction, numerical resolution of ordinary differential equations and partial derivates, and to several Medicine areas, such as, ECG analysis. She is also interested in the relationship between numerical analysis and coding theory, in unordered codes and high order spectral null codes.

SCIENTIFIC PUBLICATIONS:
Number: 45.

GRANTS:
She has been the PI of the following grants:
  • "Wavelet Functions and the Theory of Error Correcting Codes" – Financed by the Engineering Faculties of the University of Rome "La Sapienza", 2009.
  • "Numerical Methods based on wavelets and applications" – Financed by the Engineering Faculty of the University of Rome "La Sapienza", 2005.
She participates or has participated to many other research grants, among which the following national grants:
  • "Teoria e Progetto di Codici per il Controllo di Errori su Canali Asimmetrici/Unidirezionali e

su Altri Modelli di Canale", PRIN 2009, financed by the Italian Ministry of Education (MIUR), 2011-2013.
- "Building and Applicatives Aspects of New Functional Spaces in the Numerical Approssimation area", PRIN 2002, financed by the Italian Ministry of Education (MIUR), 2002-2004.
- "Numerical Analisys and Algoritms for non-linear differential problems", PRIN 2000, financed by the Italian Ministry of Education (MIUR), 2000-2002.

FELLOWSHIPS AWARDED:
- Italian National Research Council (CNR) Fellowships, 1991.
- Italian National Institute of Higher Mathematics (Istituto Nazionale Di Alta Matematica (INDAM)) Fellowships, 1991.
- Italian National Research Council (CNR) Fellowships, 1995.
- Doctorate Fellowship in Mathematics from the University of Florence, 1992-1995.
- Fellowship to study abroad financed by the University of Florence, 1994.

INSTITUTIONAL OFFICES:
- Since 2008 she is a member of the Electronic Engineering Area Council,
- From 1997 to 2007 she has been a member of the Aereospatial Engineering Area Council,
- Since 2007 she is a Doctorate Committee member for a Ph. D. program of the Communication Sciences Department - University of Teramo.
- From 2003 to 2005 she has been a member of the Metodi e Modelli Matematici (Me. Mo. Mat.) Department Library Committee,
- From 2005 to 2007 she has been a member of the Metodi e Modelli Matematici (Me. Mo. Mat.) Department Council,
- In 2002 she was a member of the Comparative Evaluation Committee for a job as University Researcher at the Engineering faculty of "Università degli studi di Padova",
- She is a member of the Italian Mathematical Union (UMI),
- She is a member of the Italian Scientific Calculus National Group (GNCS),
- She is a member of the Applied and Industrial Mathematics Italian Society (SIMAI).

RESEARCH ACTIVITIES:
- She was invited at the School of Electrical Engineering & Computer Science, Oregon State University, Agosto 2012, to perform joint research work in coding theory with Prof. Bella Bose.
- She was invited at the Centre International de Rencontres Mathematicques (CIRM) in Luminy - France, on the occasion of HASSIP Minischool on "Non-linear and Adaptive Approximation", 2004.
- She presented her research work to the following national and/or international meetings (* orator):
  1. IEEE International Symposium on Information Theory 2013, Istanbul, Turkey, presenting the work "On Efficient Second-Order Spectral-Null Codes using Sets of m1-Balancing Functions" by R. Mascella*, D. Pelusi, L. Pezza, S. Elmougy, L. G. Tallini, B. Bose;
  2. IEEE International Symposium on Information Theory 2009, Seoul, Corea, presenting the work "On Systematic Variable Length Unordered Codes" by L. Pezza, L. Tallini*, B. Bose;
  3. SIMAI 2008, presenting the work "On sistematic variable lenght check symbols unordered codes", (L. Pezza*, L. Tallini), Rome, September 2008.
  4. E.C.M.I. 2008, presenting the poster "Surface Recognition of His-Purkinje activity by

one-beat analysis wavelet transform system in the evaluation of type 1 second-degree AV block" (V. Pezza, E. Pezza, B. Pezza, L. Pezza*, V. Sanguigni), London (GB), 30 June-4 July 2008.

5. Meeting of Circulation 2004, presenting the poster "Surface Recognition of His-Purkinje activity by one-beat analysis wavelet transform system", (V. Pezza*, E. Pezza, B. Pezza, L. Pezza, V. Sanguigni), New Orleans, LA, USA, 26 October 2004.

6. SIMAI 2004, presenting the work "Some results on certain fractional wavelets" (L. Pezza*), Venice ITALY, September 2004.

7. GNCS annual meeting, presenting the work "Bases of fractional refinable functions", Montecatini Terme, 9-11 febbraio 2004 (L. Pezza*).

8. International Conference "Classical and New Approximation Spaces: Theory and Applications", Rome 5-7 February 2004, presenting the work "Some results on a new class of fractional refinable functions" (L. Pezza*).

9. Mascot03, Forte Village (Cagliari), 2-4 October 2003, presenting the work "A class of fractional refinable functions" (L. Pezza*);

10. International Conference on Wavelets and Splines, S.Petersburg (Russia) 2003, presenting the work "Recent results on refinable bases on the interval" (L. Gori, L.Pezza*, E. Santi);

11. Mascot02 I.A.C.-C.N.R., Rome 2-4 October 2002, presenting the work "On the construction of wavelet bases on the interval" (L. Gori, L.Pezza*, F. Pitolli);

12. National meeting of Numerical Analysis: State of the Art, Arcavacata di Rende (Cosenza), 26-28 September 2002, presenting the work "Bases of biortogonal wavelets on the interval and applications" (L. Gori, L. Pezza*).

13. Fifth International Conference on "Curves and Surfaces", presenting the work "New families of wavelets on the interval" (L. Gori, L.Pezza, F. Pitolli*), Saint Malo, June 2002;

14. SIMAI 2002, "On some applications of certain refinable bases on the interval" (L. Gori, L. Pezza, Pitolli*), Chia Laguna (Ca), May 2002.

15. GNCS annual meeting, Rome, May 2002, (L. Gori, L. Pezza, F. Pitolli*).

16. GNCS annual meeting, Ferrara 12-13 February 2002, with the work "Applications of a class of refinable functions on interval" (L. Gori, L. Pezza*, E. Santi), with the presentation "Stato dell'arte" Prog. Prof. T. Bozzini;

17. Mascot01, I.A.C.-C.N.R., Rome, 22-24 October 2001, presenting the work "Galerkin method based on a particular class of refinable functions" (L. Gori, L. Pezza*);

18. Optimization of Finite Element Approximation and Splines & Wavelets, St. Petersburg, Russia, 25-29 June 2001, presenting the work "On some applications of the wavelet Galerkin method for boundary value problems" (L. Gori, L. Pezza*);

19. Fourth International Conference on "Curves and Surfaces", S. Malo, July 1999, presenting the poster "A Class of Optimal Bases for CAGD" (L. Gori, L. Pezza, F. Pitolli*).

20. S.I.M.A.I.'98 Meeting, Giardini di Naxos (Messina), presenting two works entitled:" On the Wavelet Galerkin Method based on a particular class of Wavelets" (L. Gori, L. Pezza*, F. Pitolli) e " Cardinal Filters" (L. Pezza, F. Pitolli*).

21. G.N.F.M. '93 Meeting, Rome, presenting a work entitled: "Accurate Hopf points for a Bingham fluid" (L. Pezza*, D. Mansutti).

22. Seventh European Conference on Mathematics in Industry, Montecatini 1993, presenting two works entitled: "Accurate Hopf points for the Poiseuille flow of a Bingham fluid" (D. Mansutti, L. Pezza*);

23. "Controlling the flow rate of a Bingham fluid undergoing stress-induced degradation in a pipe" (L. Pezza, F. Rosso*);

24. First European Congress of Mathematics, Paris 1992, presenting a work entitled: "Accurate Hopf points for the Poiseuille flow of a Bingham fluid" (L. Pezza, D. Mansutti*).

25. SIMAI '92 Meeting, Florence, presenting the work "Bridgman tecnique for monocrystals. III: Test del metodo diretto per biforcazioni alla Hopf" (D. Mansutti, L. Pezza*).
26. She has organized the following International Meetings:
27. "Recent Progress in Spline and Wavelet Approximation", Rome, Italy, from June 14-th to 16-th, 2006.
28. "Classical and New Approximation Spaces: Theory and Applications", Rome, Italy, from February 5-th to 7-th, 2004.

SELECTED PUBLICATIONS:

1. L. Pezza, L. G. Tallini and B. Bose, "Variable Length Unordered Codes", IEEE Transactions on Information Theory, IEEE Press, vol. 58, n. 2, pp. 548-569 , February 2012.
2. L. Pezza, L. G. Tallini and B. Bose, "Systematic Variable Length Check Binary Unordered/AUED Codes", "APPLIED AND INDUSTRIAL MATHEMATICS IN ITALY III Selected Contributions from the 9th SIMAI Conference" – Series on Advances in Mathematics for Applied Sciences - Vol. 82, World Scientific Publishing Co., pp. 461-472, 2009.
3. V. Pezza, B. Pezza, E. Pezza, L. Pezza, V. Sanguigni, M. Curione, "Surface recording of His-Purkinje activity by one-beat wavelet analysis in atrial fibrillation and flutter", E.C.M.I. Proceedings 2008 (eds. Eddie Wilson, Alistair Fitt, John Norbury, H Ockendon) LONDON, pp. 971-976.
4. L. Pezza, "Fractional GP Refinable Functions", Rendiconti di Matematica, Serie VII Volume 27, Roma (2007), 73-87, ISSN: 1120-7183.
5. L. Pezza, "A new class of biorthogonal wavelets on the interval", in Wavelets and Splines, M. Skopina Eds., St. Petersburg Univ. Press, St. Petersburg, 2005, 40-57, ISBN 5-288-03733-7/pbk.
6. L. Gori, L. Pezza, F. Pitolli, "Recent Results on Wavelet Bases on the Interval Generated by GP Refinable Functions", Appl. Numer. Math., 51, n.4, 2004, 549-563. ISSN: 0168-9274.
7. V. Pezza, E. Pezza, B. Pezza, L. Pezza, V. Sanguigni, "Surface recognition of His-Purkinje activity by one-beat analysis wavelet transform system", Meeting of Circulation 2004, New Orleans, La, Usa, 26 ottobre 2004, vol.110, n.17, p. 457.
8. L. Gori, L. Pezza, "On Some Applications of the Wavelet Galerkin Method for Boundary Value Problems", Mat. Model., 15, n.5, pp. 61-70, 2003; ISSN: 0234-0879.
9. L. Gori, L. Pezza, F. Pitolli, "New Families of Wavelets on the Interval", in Curves and surface (Saint-Malo, 2002), pp. 177-186, Mod. Methods Math., Nashboro Press, Brentwood, TN, 2003.
10. L. Gori, F. Pitolli, L. Pezza, "On the Galerkin Method Based on a Particular Class of Scaling Functions", Num. Alg. v.28 pp. 187-198, 2001; ISSN: 1017-1398.
11. A. Fasano, L. Pezza, "On a Temperature-dependent Hele-Shaw flow in one dimension", Rendiconti di Matematica dell Accademia dei Lincei, s. 9, v. 12, pp.57-67; 2001; ISSN: 1120-6330.
12. R. Gianni, L. Pezza, F. Rosso, "The constant flow rate problem for fluids with increasing yield stress in a pipe", Theoretical and computational fluid dynamics, n. 7, pp. 477-493. 1995; ISSN: 0935-4964.
13. R. Gianni, L. Pezza, F. Rosso, "Controlling the flow rate of a Bingham fluid undergoing stress-induced degradation in a pipe", Proceedings of the Seventh E.C.M.I. 93, A. Fasano e M. Primicerio (Eds). B. G. Teubner Stuttgart 1994. pp. 217-224.

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