

# Vitae

## María Cristina Pereyra

**Born in:** Buenos Aires, Argentina  
**Birth Date:** April 13, 1964  
**Residence:** U.S. Citizen  
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### Education

- **Ph.D.:** 1993, Yale University, New Haven, CT, Mathematics.  
Thesis Title: *Sobolev Spaces on Lipschitz Curves. Paraproducts, Inverses and some related operators.*  
Thesis Advisor: Peter W. Jones.
- **M.S.:** 1989, Yale University, New Haven, CT, Mathematics.
- **B.S** 1986, Universidad Central de Venezuela, Licenciado en Matemáticas, Summa Cum Laude.

### Employment History

- Full Professor, 2009–present, University of New Mexico, Albuquerque, NM.
- Associate Professor, 2001–2009, University of New Mexico, Albuquerque, NM.
- Assistant Professor, 1996–2001, University of New Mexico, Albuquerque, NM.
- Instructor, 1993–96, Princeton University, Princeton, NJ.

### Employment History—concurrent temporary or visiting appointments

- Visiting Fellow, Fall 2003, Centre de Recerca Matemàtica, Barcelona, Spain.
- Visiting Fellow, June 1–July 9, 1999, Centre de Recerca Matemàtica, Barcelona, Spain.
- Visiting Fellow, June 1997, University of Edinburgh, Scotland.
- Visiting Fellow, Summer 1996, Macquarie University at Sydney, Australia.
- Member, Jan-June 1994, Institute for Advanced Study, Princeton, NJ.
- Teaching Assistant, 1987–93, Yale University, New Haven, CT.

### Graduate Students

- Daewon Chung (PhD Summer 2010)  
Dissertation: *Commutators and dyadic paraproducts on weighted Lebesgue spaces.*  
Postdoc at the University of New Mexico, Albuquerque, NM (Academic year 2010-2011).
- Dariuz Panek (PhD December 2008)  
Dissertation: *On Sharp Extrapolation Theorems.*  
Currently Visiting Assistant Professor at University of Ohio, Athens (2008-2011).
- Kouros Raaen (MS Summer 2008)  
Thesis: *Gibbs' Phenomenon in Wavelets and Fourier Analysis.*
- Oleksandra Beznosova (PhD May 2008)  
Dissertation: *Bellman functions, Paraproducts, Haar Multipliers and Weighted Inequalities.*  
Currently Postdoc at University of Missouri, Columbia (2008-2011).

- Bernadette Mendoza-Spencer (MS May 2006)  
Thesis: *The continuous and discrete Hilbert transform*. Co-advised with P. Embid.

## Publications

- **Books published and in preparation**

- *Wavelets, their friends, and what they can do for you*, with Martin Mohlenkamp. European Mathematical Society (EMS), Series of Lectures in Mathematics, 2008.
- *Harmonic Analysis: from Fourier to Wavelets*, with Lesley Ward. In preparation, being considered for publication by the American Mathematical Society.

- **Articles published in peer reviewed journals**

1. M. Cotlar, J. León, M. C. Pereyra. *Eigenfunction expansions of covariance kernels of Hilbert space processes*. Acta Cient. Venezolana 38 # 5-6, p. 563-569 (1987).
2. M. C. Pereyra. *On the resolvents of dyadic paraproducts*. Rev. Mat. Iberoamer. 10 # 3, p. 627-664 (1994).
3. M. C. Pereyra. *On the resolvent of the dyadic paraproduct, and a non linear operation on  $RH_p$  weights*. Contemp. Math. 189, Amer. Math. Soc. p. 461-471 (1995).
4. M. C. Pereyra. *Sobolev spaces on Lipschitz curves*. Pacific J. Math. 172 # 2, p. 553-589 (1996).
5. N. Katz, M. C. Pereyra. *On the two weight problem for the Hilbert transform*. Rev. Mat. Iberoamer. 13 #1, p. 211-243 (1997).
6. M. C. Pereyra, L. Ward. *Paraexponentials, Muckenhoupt weights, and resolvents of paraproducts*. Proc. Amer. Math. Soc. 126 #1, p. 135-144 (1998).
7. J. D. Lakey, P. Massopust, M. C. Pereyra. *Divergence-free multiwavelets*. “Approximation theory IX. Computational aspects”, C. K. Chui, L. L. Schumaker eds. Innov. Appl. Math., Vanderbilt University Press, Nashville, TN, 2, p. 161-168 (1998) (refereed conference proceedings).
8. J. Lakey, M. C. Pereyra. *Multiwavelets on the interval and divergence-free wavelets*. In “Wavelet applications in signal and image processing VII”, M. Unser, A. Aldroubi, A. Laine eds., Proc. SPIE 3813, p. 162-173 (1999) (refereed conference proceedings).
9. M. C. Pereyra, A. M. Vargas. *A note on a maximal function over arbitrary sets of directions*. Bull. London Math. Soc. 32 # 1, p. 71-74 (2000).
10. S. Efromovich, N. Tymes, M. C. Pereyra. *The Application of Multiwavelets to Recovery of Signals*. Computing Science and Statistics, 33 (2000).
11. J. Lakey, S. Obeidat, M. C. Pereyra. *Multiwavelet characterization of function spaces adapted to the Navier-Stokes equations*. Proc. SPIE Vol. 4119, p. 372-383, Wavelet Applications in Signal and Image Processing VIII, Akram Aldroubi; Andrew F. Laine; Michael A. Unser; Eds (2000)(invited paper).
12. T. Berkopec, J. Lakey, M. C. Pereyra, N. Tymes Jr. *Multiwavelets and EP denoising*. Proc. SPIE Vol. 4478, p. 230-241, Wavelets: Applications in Signal and Image Processing IX, Andrew F. Laine; Michael A. Unser; Akram Aldroubi; Eds. (2001)(refereed conference proceedings).
13. Paul F. Hubbard, M. C. Pereyra, Kristin L. Umland, and Thomas P. Caudell. *Three -dimensional audio localization using wavelet-domain convolution*, Proc. SPIE Vol. 5207, p.271-279 Wavelets: Applications in Signal and Image Processing X, Michael A. Unser, Akram Aldroubi, Andrew F. Laine; Eds. (2004) (refereed conference proceedings).
14. S. Efromovich, J. Lakey, N. Tymes, M. C. Pereyra. *Data-driven and optimal denoising of a signal and recovery of its derivative using multiwavelets*. IEEE Transactions on Signal Processing, vol 52, no. 3, p.1-8 (2004).

- 15 Oliver Dragičević, Loukas Grafakos, M. C. Pereyra, and Stefanie Petermichl. *Extrapolation and sharp norm estimates for classical operators on weighted Lebesgue spaces*. Publ. Mat. **49** p.73-91 (2005).
16. M. C. Pereyra. *Haar multipliers meet Bellman functions*. Rev. Mat. Iberoamericana **25** (2009), no. 3, 799-840.

- **Chapters in Peer Reviewed Edited Collections**

- 1 J. Lakey, M. C. Pereyra. *On the non-existence of certain divergence-free multi-wavelets*. In “Wavelet Transforms and Time-Frequency Signal Analysis”, L. Debnath editor. Birkhauser Boston, Vol 2, Chapter 3, p. 41–54 (2003)(invited paper).
2. M. C. Pereyra. *Lecture Notes in Dyadic Harmonic Analysis*. In “Second Summer school in analysis and mathematical physics. Topics in analysis: harmonic, complex, nonlinear and quantization,” Cuernavaca Morelos, Mexico, June 12-22, 2000. S. Pérez-Esteve, C.Villegas eds. Contemporary Mathematics **289** AMS, Ch. I, p. 1-61 (2001).
3. J. Lakey, M. C. Pereyra. *Divergence-free multiwavelets on rectangular domains*. Lecture Notes in Pure and Applied Mathematics Series **212**, “Wavelet Analysis and Multiresolution Methods”, edited by Tian-Xiao He. Marcel Decker, Inc. Chapter 9, p. 203-240 (2000)(invited paper).
4. N. H. Katz, M. C. Pereyra. *Haar multipliers, paraproducts and weighted inequalities*. In “Analysis of Divergence”, W. Bray, C. Stanojevic eds., Birkhäuser, Boston, Chapter 10, p. 145-170 (1999) (invited paper).

- **Articles Submitted for Publication or in Preparation**

1. D. Chung, M. C. Pereyra, C. Perez. *Sharp bounds for general commutators on weighted Lebesgue spaces*. Submitted February 2010.
2. O. Beznosova, D. Panek, M. C. Pereyra. *Weighted  $L^p$ -estimates for the dyadic square function on homogeneous spaces: from Bellman functions to sharp Lerner’s extrapolation*. In Preparation.
3. D. Panek, M. C. Pereyra. *Optimal estimates for the  $\sigma$ -maximal operator and  $\sigma$ -extrapolation theorems on homogeneous spaces*. In Preparation.
4. O. Beznosova, M. C. Pereyra. *Haar multipliers revisited*. In Preparation.

- **Lecture Notes**

1. *Wavelets, their friends, and what they can do for you*, with Martin Mohlenkamp. Fifty one pages lecture notes used for the short course *From Fourier to Wavelets* at the III Panamerican Advanced Studies Institute in Computational Science and Engineering (PASI III), held at the Universidad Tecnológica de la Mixteca, Huajuapán de León, Oaxaca, México (July 16-21, 2006). This was a revised version of the lecture notes used for the short course *Wavelets and Partial Differential Equations* at the II Panamerican Advanced Studies Institute (PASI II) held at Universidad Autónoma de Honduras, Tegucigalpa, Honduras (June 2004).
2. *Harmonic Analysis: from Fourier to Haar*, with Lesley Ward. Seventy pages lecture notes delivered at the Program for Women in Mathematics held at the Institute for Advanced Studies, Princeton (May 2004).
3. *Lecture notes on wavelets: theory and applications*. Sixty pages lecture notes delivered at the I Panamerican Advanced Studies Institute, held at FAMAF, Facultad de Matemática, Astronomía y Física Universidad Nacional de Córdoba, Córdoba, Argentina (June-July 2002). These notes were the basis for the notes in item 1.

- **Other writings**

- *Fourier Analysis and Wavelets:*

Four projects used on the intensive one week minicourse for the MCTP-NSF sponsored Summer Program at UNM on “Gibbs Phenomenon”, “The power of Averaging or Summability Methods”,

“The Fast Fourier Transform and the Fast Haar Transform”, and “The Haar system in  $\mathbb{R}$ ”. These are a total of 30 pages guides for the students to work on non-trivial projects in groups with guidance from the teacher and the TAs. These projects evolved over the three summers that the minicourse was held (Summer 2008, 2009 and 2010). They are now more streamlined, and perhaps the experiment can be replicated elsewhere.

– *UNM/PNM Statewide Mathematics Contest:*

First and Second Round exams for the 1999-2002, and 2004-2005 Math Contests. Corresponding First and Second Round Solutions (an average of 15 pages per solution set). I am considering the preparation of a book with the exams and solutions for the New Mexico Math contest from 1999-2008, this would be a follow up to the book *New Mexico Mathematics Contest Problem Book* by Liong-Shin Hahn, University of New Mexico Press, 2005.

## Funding

I am currently P.I. of one large NSF grant. I have been P.I. of three other NSF grants and two SURP grants. I have been and I am responsible as a P.I. for 891K.

- **Awarded NSF EMSW21-MCTP Grant #0739417**

- Title: *EMSW21-MCTP Attracting, Motivating and Preparing Mathematics students in the Southwest by building an energetic community.*

- **P.I.** M. C. Pereyra, **Co-P.I.s** Jens Lorenz, Michael Nakamaye, Monika Nitsche.

- Starting: 06/15/2008. Ending: 06/14/2011.

- PP Total costs - \$757,346.00

- **Awarded August 2007:** College of Arts and Sciences Faculty Development Fund support in the amount of \$2,500 towards the 10th New Mexico Analysis Seminar and *An afternoon in Honor to Mischa Cotlar* held at UNM on October 11-12, 2007.

- **Awarded NSF Grant #DMS-0713888**

- Title: *New Mexico Analysis Seminars.*

- **P.I.** M. C. Pereyra, **Co-P.I.s** Tiziana Giorgi (NMSU), J. Lakey (NMSU), Adam Sikora (NMSU), Bob Smits (NMSU).

- Starting: 09/01/2007. Ending: 08/31/2010.

- PP Total costs - \$25,000.

- **Awarded NSF-CBMS Grant # 0440945**

- Title: *NSF/CBMS Regional Conference in the Mathematical Sciences, Nonlinear dispersive and wave equations..*

- **P.I.** J. Lakey (NMSU), **Co-P.I.s** Tiziana Giorgi (NMSU), M. C. Pereyra (UNM), Adam Sikora (NMSU), Bob Smits (NMSU).

- Starting: 05/01/05. Ending: 04/31/06.

- PP Total costs - Awd: \$31,329.00

- **Awarded NSF Grant #DMS-0431484**

- Title: *New Mexico Analysis Seminars.*

- **P.I.** M. C. Pereyra, **Co-P.I.s** Tiziana Giorgi (NMSU), J. Lakey (NMSU), Adam Sikora (NMSU), Bob Smits (NMSU).

- Starting: 05/01/04. Ending: 04/29/06.

- PP Total costs - Awd: \$15,000.

- **Visitor at CRM:** Local expenses were partially supported by the Centre de Recerca Matemàtica in Barcelona (Fall 2003).
- **Domestic Travel Grant AWM/NSF:** To participate in the IAS/Park City Mathematics Institute held in Park City, Utah. Grant amount: \$1,000 (July 2003).
- **Awarded NSF Grant # 0086986**
  - **Title:** New Mexico Analysis Seminars.
  - **P.I.** María Cristina Pereyra. **Co-P.I.s** Joseph Lakey (NMSU); Josefina Alvarez (NMSU).
  - **Starting:** 01/15/01. **Ending:** 01/15/04.
  - PP Total costs - Awd: \$20,941.00
- **AWM-NSF International Travel Grant:** To attend Spring School in Analysis on “Recent Techniques in Harmonic Analysis”, Paseky, Czech Republic, May 28-June 3, 2000. Amount funded: \$1,800.00.
- **SURP Grant # AX-6430, renewal**
  - **Title:** Divergence free multiwavelets in Navier-Stokes systems.
  - **P.I.** M. C. Pereyra, **Co-P.I.** J. Lakey (NMSU).
  - **Funded by:** Sandia National Laboratories.
  - **Starting:** 10/1/98. **Ending:** 9/30/99.
  - PP Total Costs - Awd: \$ 35,000.00
- **SURP Grant # AX-6430**
  - **Title:** Divergence free multiwavelets in Navier-Stokes systems.
  - **P.I.** María Cristina Pereyra, **Co-P.I.** Joseph Lakey (NMSU).
  - **Funded by:** Sandia National Laboratories.
  - **Starting:** 10/1/97. **Ending:** 9/30/98.
  - PP Total Costs - Awd: \$ 35,000.00
- **EPSRC Visiting Fellowship # GR/160661:** Travel Grant to visit the University of Edinburgh, Scotland (June 1997).

## Invited and Contributed Presentations at Professional Meetings

- Invited Speaker at the Special Session in *Harmonic Analysis* at the AMS Fall Western Sectional Meeting #1063, to be held in Los Angeles, CA, October 9-10, 2010.
- Invited Speaker at the Special Session in *Harmonic Analysis* at the AMS Fall Eastern Sectional Meeting #1062, to be held in Syracuse, NY, October 2-3, 2010.
- Invited Speaker to the ICM (International Congress of Mathematicians) Satellite Conference in Harmonic Analysis to be held in NISER, Bhubaneswar in August 29 - September 2, 2010 (could not attend for personal reasons).
- Invited Speaker at the *2010 February Fourier Talks (FFT) at the Norbert Wiener Center*, February 18-19, 2010 at the University of Maryland, College Park (one of 16 invited speakers, 14 of us gave 30 minutes talk, the two super-speakers were E. Stein and C. Fefferman from Princeton University who gave one hour Lectures)
- Invited Speaker at the Special Session in *Harmonic Analysis* at the AMS Fall Southeastern Meeting, October 30-November 1, 2009, at Florida Atlantic University in Boca Raton FL.

- Invited Speaker at the Special Session in *Harmonic and Functional Analysis* in the joint AMS-SMM in Zacatecas, México (May 2007).
- Invited Speaker at the *21<sup>th</sup> Auburn Mini Conference on Harmonic Analysis and Related Areas*, Auburn University, Alabama (November 2006) (Couldn't attend for personal reasons).
- Contributed talk at the *Sixth Prairie Seminar*, held at University of Kansas, Lawrence, Kansas (October 2006).
- Invited Speaker at *VI Panamerican Workshop in Applied and Computational Mathematics* held at Universidad del Mar, Huatulco, Oaxaca, México (July 23-28, 2006).
- Invited Speaker at *ShowMe Analysis Meeting 2004* held at University of Missouri-Columbia, Columbia, Missouri (June 3-5, 2004) (couldn't attend due to advanced pregnancy).
- Workshop on *Harmonic Analysis and Partial Differential Equations*, Puerto Vallarta, México (Jun 23-27, 2003).
- Special Session on *Function Spaces, Singular Integrals and Applications to PDEs* at the AMS South-eastern Section Meeting in Orlando, FL (Nov 2002).
- *Wavelets: Applications in Signal and Image Processing*, in the SPIE's 46th Annual Meeting, San Diego, CA (July 2001).
- *Third New Mexico Analysis Seminar*, NMSU, Las Cruces, NM (Feb 2000).
- AMS Meeting # 948, Austin, TX: *Special Session on Wavelets and Approximation Theory* (Oct 1999).
- IV Joint Meeting American Mathematical Society-Sociedad Matemática Mexicana (AMS-SMM), Denton, TX: Special Session on *Wavelets* (May 1999).
- NSF-CBMS Regional Research Conference on *Wavelet Analysis as a tool for computational and Harmonic Analysis*, Orlando, FL (May 1998).
- *First New Mexico Analysis Seminar*, NMSU, Las Cruces, NM (Feb 1998).
- AMS Regional Meeting # 926, Atlanta, GA: *Special Session on Harmonic Analysis* (Oct 1997).
- *7th International Workshop on Analysis and its Applications*, Maine (Jun 1997).
- AMS Regional Meeting, Kent, OH: *Special Session on Harmonic Analysis and PDE's* (Nov 1995).
- *Conference in honor to Mischa Cotlar*, Caracas, Venezuela (Jan 1994).
- *Conference in honor to Guido Weiss*. Universidad Autónoma de Madrid, Spain (May 1993).

## Other Talks

- **Colloquia:** University of Texas at El Paso, TX (Fall 2009), University of New Mexico, Albuquerque, NM (Fall 2008). McGill University joint Concordia University, Montreal, Canada (Nov 2007); New Mexico State University, Las Cruces, NM (Sep 2007); Universidad Central de Venezuela (March 2004); Universidad de Sevilla, Spain (Dec 2003); Instituto de Matemáticas, UNAM, Mexico City, México (Mar 2000); Instituto de Matemáticas, UNAM, Unidad Cuernavaca, México (Mar 2000); New Mexico State University, Las Cruces, NM (Feb 1997); MacQuarie University, Sydney, Australia (Aug 1996); University of New Mexico, Albuquerque, NM (Apr 1996); University of Colorado at Colorado Springs, CO (Mar 1996); Yale University, New Haven, CT (Jan 1996); Temple University, Philadelphia, PA (Nov 1995); Lehigh University, PA (May 1994); Wright University, Dayton, OH (Apr 1993).

- **Analysis Seminars:** University of New Mexico, Albuquerque, NM (5 talks in two different seminars, Spring 2006) University of New Mexico, Albuquerque, NM ( 3 talks, Fall 2005); Institute for Advanced Studies, Princeton, NJ (May 2004); Universidad Autonoma de Madrid, Spain (Dec 2003); Universidad de Valencia, Spain (Dec 2003); Joint Universidad Central de Barcelona, Universidad Autónoma de Barcelona and Centre de Recerca Matemática, Spain (Nov 2003); University of California at Los Angeles (May 2003); University of New Mexico, Albuquerque, NM (4 talks, Fall 2002); Instituto de Matemáticas, UNAM, Ciudad de Mexico (March 2000); University of New Mexico, Albuquerque, NM (Feb 2000); Universitat Autònoma de Barcelona, Spain (Jun 1999); Universidad Autónoma de Madrid, Spain (Jun 1999); University of Missouri at Columbia, MI (Apr 1999); Universidad Central de Venezuela, Caracas, VZLA (Jan 91, Jan 92, Jul 95, Jan 96, Jan 97, Jan 98); University of Edinburgh, Scotland (Jun 1997); University of New Mexico, Albuquerque, NM (Nov 96, Dec 96, Apr 97, May 97); Rice University, Houston, TX (Oct 1996); MacQuarie University, Sydney, Australia (Jul 1996); New South Wales University, Sydney, Australia (Jul 1996); Universitat Central de Barcelona, Spain (Jun 1996); CUNY, New York City, NY (Oct 1995); Brown University, Providence, RI (Sep 1995); University of Colorado at Boulder, CO (Jul 1995); UCLA, Los Angeles, CA (Jun 1995); Princeton University, Princeton, NJ (Oct 1993); University of Texas at Austin, TX (March 1993); Yale University, New Haven, CT (Nov 1992).
- **Other:** Graduate Colloquium at University of New Mexico, Albuquerque, NM (August 2006); Sandia National Labs, Albuquerque, NM (June 1998); Public Lecture at UNM, joint with Prof. Efromovich and Prof. Wofsy as part of the Mathematics Awareness Week, (Apr 1998); Graduate Seminar, UNM, Albuquerque, NM (Feb 1998).

## Awards and Honors

- The Project for New Mexico Graduates of Color (PNMGC)  
Nominated for 2009-2010 Faculty of Color Awards.
- Department of Mathematics and Statistics  
Outstanding Graduate Chair (May 2009)
- The Project for New Mexico Graduates of Color (PNMGC)  
Nominated for 2008-2009 Faculty of Color Awards.
- The Project for New Mexico Graduates of Color (PNMGC)  
Nominated for 2007-2008 Faculty of Color Awards.
- Department of Mathematics and Statistics Outstanding Graduate Professor for academic year 2006-2007.
- Department of Mathematics and Statistics Outstanding Graduate Professor for academic year 2005-2006.
- Member of the Venezuelan team for the International Mathematics Olympiad: in 1981 at Washington, DC, USA; and in 1982 at Budapest, Hungary.

## Teaching at University of New Mexico

- **Lower-level Undergraduate Courses:** Business Calculus, Calculus I, II and III (Engineering/Sciences sequence), Calculus for biology and BA/MD students.
- **Upper Level Undergraduate Courses:** Vector Analysis, Discrete Mathematical Structures, Advanced Calculus I and II, Introduction to Wavelets, Linear Algebra.
- **Graduate Courses:** Real Analysis I and II, Complex Analysis I and II, Measure Theory, Functional Analysis I and II, Introduction to Harmonic Analysis, Wavelets and Fourier Analysis.

- **Reading and Research for Graduate Students:** I have done this since Fall 1997, almost every semester (except when on sabbatical) for at least one graduate student per semester.
- **Individual Study for Undergraduate Students:** Mathew A. Buicam (Spring 2000- Wavelets), Elena A. Pliss (EECE, Summer 2002 - Wavelets), Jason Brown and Bob Cordwel (Fall 2002, Math 431 - topology).
- **Current PhD students:** Jean Moraes (just passed comprehensives in August 2010).
- **PhD Dissertation Committees:** Yan Qiu (Sindy), PhD Mathematics (Summer 2010), Daewon Cung, PhD in Mathematics (Chair, July 2010), Thakshila Wimalajeewa Wewelwala-Hewage, PhD ECE (Fall 2009), Pavlo Cherepanov, PhD Mathematics (Spring 2009), Adam Ringler, PhD Mathematics (Fall 2008), Darek Panek, PhD in Mathematics (Chair, August 2008), Jessica Deshler, PhD in Math Education (Summer 2008), Oksana Guba, PhD in Mathematics (Spring 2008), Oleksandra Beznosoba, PhD in Mathematics (Chair, Spring 2008), Zhaoxian Zhou, PhD in Engineering (Spring 2005), Juan Gaspar Vargas-Rubio, PhD in Engineering (Summer 2004), Nate Tymes, PhD in Statistics (Spring 2002), Lyudmilla Sakhanenko, PhD in Statistics (Spring 2002), Dmitriy Panchenko, PhD in Mathematics (Spring 2002), Martha Monteiro, PhD in Mathematics (Aug 2000).
- **MS Thesis Committees:** Petersen Moyo, MS in Mathematics (Spring 2009), Kourosh Raeen, MS in Mathematics (Chair, Summer 2008), Daishu Komagata, MS in Applied Mathematics (Summer 2007), Christin Gunning, MS in Applied Mathematics (Summer 2007), Pablo Delgado, MS in Math Education (Spring 2007), Lakshmikanth Reddy Sripuram, MS in ECE (Spring 2007), David Worth, MS in Mathematics (Fall 2006), Bernadette Mendoza-Spencer, MS in Mathematics (Chair, Spring 2006), Bobbi Page, MS in Mathematics (Spring 2006), Vibhor Gautam, MS in Mathematics (Summer 2005).

## Other Teaching

- **Minicourses:** Since 2000, I have taught a week-long minicourse every other year, in different countries.
  1. Four six hour sessions on: *Fourier Analysis and Wavelets* at the NSF sponsored MCTP Summer 2010 Workshop to be held in June 2010, at the University of New Mexico, Albuquerque, NM.
  2. A three hour minicourse on *Dyadic Harmonic Analysis*, in the “Cursos de de Análisis Matemático en Andalucía” to be held in Cádiz, Spain (September 2009) (**Canceled due to son’s illness**)
  3. Five six hour sessions (one day just half) on: *Fourier Analysis and Wavelets* at the NSF sponsored MCTP Summer 2009 Workshop to be held in June 7-11, 2009, at the University of New Mexico, Albuquerque, NM.
  4. Five six hour sessions on: *Fourier Analysis and Wavelets* at the NSF sponsored MCTP 2008 Summer Program held at the University of New Mexico, Albuquerque, NM (July 7-August 8, 2008).
  5. Five two hour lectures on: *From Fourier to Wavelets* at the III Panamerican Advanced Studies Institute in Computational Science and Engineering (PASI), held at the Universidad Tecnológica de la Mixteca, Huajuapán de León, Oaxaca, México (July 16-21, 2006).
  6. Five lectures on: *Harmonic Analysis: from Fourier to Haar*, at the Program for Women in Mathematics: Analysis and PDE’s, at the Institute for Advanced Studies in Princeton, NJ (May 17-28, 2004).
  7. Five lectures on *Wavelets: Theory and applications* at I Panamerican Advanced Studies Institute, held at FAMAF, Facultad de Matemática, Astronomía y Física Universidad Nacional de Córdoba, Córdoba, Argentina (June-July 2002).
  8. Six lectures on *Singular integrals and Haar functions* at the Summer School on Analysis, Instituto de Matemática, Unidad Cuernaca, Universidad Nacional Autónoma de México, Mexico (June 2000).

- **Teaching at Princeton University**

Taught Basic Calculus, Multivariable Calculus, Linear Algebra (1993-96).

- **Teaching Fellow at Yale University**

Taught Single Variable Calculus, Several Variable Calculus. In charge of several problem sessions, grading and tutoring assignments (1987-92).

## Service

- **University Service:** Member of A&S Tenure and Promotion Committee (Fall 2009-Spring 2010).

Member of a Hiring Committee for a position in ECE (Fall 2007-Spring 2008).

Member Computer Engineering Hiring Committee (Spring 2000).

- **Departmental Service:**

- Member Promotion Committee to Full Professor for Michael Nakamaye (Fall 2009).

- Member Mid-tenure Review Committee for Matthew Blair (Fall 2009).

- Chair of the Graduate Committee (Fall 2006 till Spring 2009).

- Member Hiring committee for the replacement position for Donna George (Coordinator, Student advising) (Spring 2008).

- Chair Hiring Committee for Pure Mathematics positions (Fall 2006, Spring 2007).

- Hiring Committee for Pure Mathematics position (Fall 2004-Spring 2005).

- Hiring Committee for Visiting Position (Spring 2005).

- Hiring Committee for Applied Analysis position (Fall 2001-Spring 2002).

- Calculus Team with Todd Kapitula and Monika Nitsche (Fall 1999, Spring 2000).

- Math Contest Committee with Cathy Gosler (Fall 1999-Spring 2006, excluding Fall 2003-Spring 2004 while on sabbatical). Information about the contest can be found online at:

[http://www.math.unm.edu/math\\_contest/contest.html](http://www.math.unm.edu/math_contest/contest.html)

- Hiring Committee for an Applied Analysis position (Fall 2000-Spring 2000).

- Hiring Committee for two lecturer positions (Fall 1999).

- Graduate Committee (Fall 1998, Spring 1999, Fall 1999, Spring 2000, Fall 2000, Spring 2005, Fall 2005, Spring 2006, Chair since Fall 2006).

- Undergraduate Committee (Spring 1997, Fall 1997, Spring 1998).

- Member of the subcommittee responsible for writing and grading the *Real Analysis Qualifying Exam* (Spring 1998, Fall 1998, Spring 1999, Fall 1999, Spring 2000, Fall 2000, Fall 2001, Spring 2002, Spring 2005, Fall 2005, Spring 2006, Spring 2007, Fall 2007, Fall 2008, Spring 2009, Spring 2010, Fall 2010).

- Member of the subcommittee responsible for writing and grading the *Complex Analysis Qualifying Exam* (Spring 2003).

- **Seminars Organized:**

- Analysis Seminar (Spring 2007–Fall 2010)

- Harmonic Analysis and Martingales (Fall 2005, Spring 2006).

- Harmonic Analysis and PDEs (Fall 2005, Fall 2006, Spring 2008).

- Navier-Stokes Seminar (Fall 2002).

- Functional Analysis Seminar (Spring 1999).

- Wavelets Seminar (Fall 1997, Spring 1998).

- Analysis Seminar (Fall 1996, Spring 1997, Fall 1997).

• **Public Lectures Organized:**

- *Figiel’s martingale approach to singular integrals*, by Prof. Diego Maldonado (Kansas State University). A series of four lectures on October 7-9, 2009.
- *Two weighted inequalities in harmonic analysis*, by Prof. Michael Lacey (Georgia Institute of Technology). This was a four hour lecture series on September 18, 2009.
- *Topics from Calderón-Zygmund theory related to Singular Integrals and weights*, by Prof. Carlos Perez (University of Sevilla, Spain). This was a series of five lectures delivered at UNM, July 1-5, 2008.
- *Elliptic Curves*, by Bjorn Poonen (University of California at Berkeley). Lecture for the participants in the XXXVIII New Mexico Math Contest, UNM, Feb 4, 2006.
- *Mathematics and computers: problems and prospects*, by Ron Graham (University of California at San Diego). Lecture for the participants in the XXXV New Mexico Math Contest, UNM, Feb 5, 2003.
- *Spherical harmonics and qubits: old and new computations in invariant theory*, by Roger Howe (Yale University). Colloquium UNM, Feb 1st, 2002.
- *Mirrors and reflections - Symmetry from several viewpoints*, by Roger Howe (Yale University). Lecture for the participants in the XXXIV New Mexico Math Contest, UNM, Feb 2, 2002.
- *Periods and L-functions*, by Fernando Rodríguez-Villegas (University of Texas at Austin). Colloquium UNM, Feb 2, 2001.
- *Lattice polygons: What’s 12 got to do with it?* by Fernando Rodríguez-Villegas (University of Texas at Austin). Lecture for the participants in the XXXIII New Mexico Math Contest, UNM, Feb 3, 2001.
- *Zeta functions and theta functions from the heat kernel*, by Serge Lang (Yale University). Colloquium UNM, Feb 4, 2000.
- *The abc polynomial theorem and the abc conjecture*, by Serge Lang (Yale University). Lecture for the participants in the XXXII New Mexico Math Contest, UNM, Feb 5, 2000.
- *Symmetries*, by John H. Conway (Princeton University). Colloquium UNM, Feb 5, 1999.
- *Tangles, Bangles and Knots*, by John H. Conway (Princeton University). Lecture for the participants in the XXXI New Mexico Math Contest, UNM, Feb 6, 1999.

• **Conferences Organized:**

- Co-organizer with Stephanie Salomone Molnar (University of Portland) of four Special Sessions on *Dyadic and non-dyadic Harmonic Analysis* in the Southwestern Sectional AMS meeting 1059, to be held at UNM, Albuquerque, NM, April 17-18, 2010.
- Twelfth New Mexico Analysis Seminar (joint NMSU/UNM) at Albuquerque, NM, April 23-25, 2009 (sponsored by NSF). Main Speaker: Loukas Grafakos (University of Missouri at Columbia).
- Eleventh New Mexico Analysis Seminar (joint NMSU/UNM) at Las Cruces, NM, April 4-6, 2008 (joint NMSU/UNM). Main Speaker: María-Carme Calderer (University of Minnesota). Other Speakers: 13.
- Co-organizer with Wilfredo Urbina of four Special Sessions on *Harmonic Analysis and Operator Theory* in the AMS Regional Meeting # 1032 held in Albuquerque, October 13-14, 2007. Total Number of Speakers: 24.
- Co-organizer with Wilfredo Urbina of an *Afternoon in Honor to Mischa Cotlar*, on October 12, 2007. Invited Speakers: Carlos Berenstein (University of Maryland), Carlos Kenig (Chicago University) Cora Sadosky (Howard University), and Serguei Treil (Brown University). More than 100 participants.

- Tenth New Mexico Analysis Seminar (joint NMSU/UNM) at Albuquerque, NM, October 11-12, 2004 (sponsored by NSF). Main Speakers: Rodrigo Bañuelos (Purdue University) and Andrea Nahmod (University of Massachusetts, Amherst). Two other invited speakers: Rodolfo Torres (University of Kansas) and Oliver Dragicevic (Ljubljana University, Slovenia). More than 100 participants. Short talks by 60 of our participants were delivered in the AMS meeting.
- Ninth New Mexico Analysis Seminar (joint NMSU/UNM) at Albuquerque, NM, April 6-8, 2006 (sponsored by NSF). Main Speaker: Tatiana Toro (University of Washington). Other Speakers: 12. More than 50 participants.
- Co-organizer of the NSF/CBMS Regional Conference in the Mathematical Sciences, *Nonlinear dispersive and wave equations*. Featured Speaker Terence Tao (UCLA). June 13-17, 2005, at Las Cruces, NM.
- Eighth New Mexico Analysis Seminar (joint NMSU/UNM) at Las Cruces, NM, June 12, 2005 (sponsored by NSF). Main Speaker: Jorge Aarao (McKeena College, Claremont, CA), delivered lectures on preparation for Tao's lectures. Other Speaker: 8. More than 50 participants.
- Co-organizer with Marianne Korten and Charles N. Moore of four Special Sessions on *Regularity in PDEs and Harmonic Analysis* in the AMS Regional Meeting # 1000 held in Albuquerque, October 16-17, 2004. Total Number of Speakers: 24.
- Departmental contact for organization of Southwestern Sectional AMS meeting 1000, held at UNM, Albuquerque, NM, October 16-17, 2004. This was the largest such meeting ever.
- Seventh New Mexico Analysis Seminar (joint NMSU/UNM) at Albuquerque, NM, October 13-14, 2004 (sponsored by NSF). Main Speakers: Patricia Bauman (Purdue University) and Luca Capogna (University of Arkansas). Four other invited speakers: Peter Sternberg (Indiana University), Lia Bronsard (McMaster University, Canada), Donatella Danielli (Purdue University), Scott Pauls (Dartmouth College). Over 90 participants.
- Sixth New Mexico Analysis Seminar (joint NMSU/UNM) at Albuquerque, NM, March 6-8, 2003 (sponsored by NSF). Main Speaker: Jill Pipher (Brown University). Other Speakers: 28. More than 60 participants.
- Fifth New Mexico Analysis Seminar (joint NMSU/UNM) at Las Cruces, NM, Feb 21-23, 2002 (sponsored by NSF). Main Speaker: John Benedetto (University of Maryland). Other Speakers: 20. More than 55 participants.
- Fourth New Mexico Analysis Seminar (joint NMSU/UNM) at Albuquerque, NM, March 1-3, 2001 (sponsored by NSF). Main Speaker: Steve Hofmann (University of Missouri, Columbia). Other Speakers: 22. More than 50 participants.
- Third New Mexico Analysis Seminar (joint NMSU/UNM) at NMSU, Las Cruces, NM, Feb 24-26, 2000. Main Speaker: Kate Okikiolu (UC San Diego). Other Speakers: 9.
- Second New Mexico Analysis Seminar (joint NMSU/UNM) at UNM, Albuquerque, NM, Feb 25-27, 1999. Main Speaker: Gilles Pisier (Texas A & M/Paris VI). Other Speakers: 7.
- First New Mexico Analysis Seminar (joint NMSU/UNM) at NMSU, Las Cruces, NM, Feb 27-28, 1998. Main Speaker: John Gilbert (UT Austin). Other Speakers: 5.
- Four Special Sessions in Harmonic Analysis in the AMS Regional Meeting # 928 held in Albuquerque, Nov 8-9, 1997 (with Jay Epperson (UNM)). Total Number of Speakers: 24. (Among them: W. Beckner, J. Gilbert, L. Grafakos, S. Hofmann, N. H. Katz, A. McIntosh, M. Mitrea, A. Nahmod, M. Pinsky, C. Sadosky, I. Verbitsky, A. Volberg.)

- **Service to the Mathematical Community**

- **Proposal Reviewer for the NSF-Infrastructure Program** in the Division of Mathematical Sciences (Spring 2009).
- **NSF Panel Member:** for MCTP/RTG grants (Sep 2008).

- **Outside Reviewer for Mid-Tenure and Tenure and Promotion cases**  
 Tenure and Promotion to Associate Professor Outside Reviewer for faculty members in University of Connecticut, and University of Portland (2010). Midtenure Outside Reviewer for Stephanie Salomone, University of Portland (2008).  
 Tenure and Promotion to Associate Professor Outside Reviewer for Tomasz Hrycak, Wichita State University (2004).
- **External Reviewer:** for an internal grant on Targeted Excellence Proposal *Interdisciplinary Interactions in mathematics* presented by the Department of Mathematics from Kansas State University, (2004).
- **Reviewer/Referee/Editor:**
  - \* Editor/referee for the African Diaspora Journal of Mathematics (2008-09).
  - \* Journal of the American Mathematical Society, Referee for Journal of Applied Analysis, The Royal Society of Edinburgh Proceedings A., Illinois Journal of Mathematics, Indiana University Mathematics Journal, Proceedings of the AMS, Rev. Mat. Iberoamericana, the Journal of Fourier Analysis and Applications. the Rocky Mountain Journal.
  - \* Reviewer for Mathematical Reviews.
  - \* Reviewer for the book *Time-Frequency and Time-Scale Methods* by Jeffrey Hogan and Joseph Lakey. Birkhäuser Series on Applied and Numerical Harmonic Analysis, 2005.
  - \* Reviewer for book *Classical and Modern Harmonic Analysis* by Loukas Grafakos. Prentice Hall, 2003.
- Invited participant to the *Diversity in the Mathematics and Scientific Community* at the BANFF International Research Station for Mathematical Innovation and Discovery, held July 27-29, 2007.
- **Professional Memberships:** American Mathematical Society (AMS), Association for Women in Mathematics (AWM), Mathematical Association of America (MAA).
- **Service to the Community**
  - Volunteer at Montevista Elementary School: once or twice a month in my younger son's kindergarten class (F2009-S2010).
  - Volunteer to be a role model at the Hispanic Heroes session in the Hispanic Youth Symposium held at University of New Mexico on July 10, 2008.
  - Referee for AISO (Soccer League), U6-7 (2006-07, 2007-08).
  - Volunteer at Montevista Elementary School: once or twice a month in my older son's kindergarden class (F2006-S2007).