CURRICULUM VITAE

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EDUCATION:
10/74 to 9/77, University of Cincinnati, Ph.D. in Mathematics.
2/73 to 12/73, National University of Colombia (Bogotá), M.S. in Mathematics.
7/69 to 12/72, National University of Colombia (Bogotá), B.S. in Mathematics.

PROFESSIONAL EXPERIENCE:
i) From June 2003 to date, Professor of Mathematics at Harvey Mudd College. From July 2008 to June 2009, Director of the Mathematics Clinic Program at Harvey Mudd College. From July 2004 to June 2008, Chair of the Department of Mathematics at Harvey Mudd College.
ii) Cátedra de Excelencia, Universidad Complutense de Madrid, February 2017 to August 2017.
iii) University of Texas at San Antonio: From August 1998 to June 2003, Professor of Mathematics; from August 1998 to August 1999, Director of the Division of Mathematics, from September 2002 to June 2003, Chair of the Department of Applied Mathematics.
iv) From September 1990 to August 1998, Professor of Mathematics at the University of North Texas.
v) From September 1989 to August 1991, Program Director of Applied Mathematics and Classical Analysis (1990-91) at the National Science Foundation.
vi) From September 1985 to August 1990, Associate Professor at the University of North Texas.
vii) From Sept. 1982 to August 1985, Associate Professor at Southwest Texas State University.
iix) Visiting Professor at the University of Brasilia, January-February 1979.
ix) From September 1977 to August 1980, Associate Professor at the Centro de Investigación del I.P.N. (Mexico); Associate Chair 1978-80. From September 1980 to May 1983, Professor of Mathematics at the same University.

PRINCIPAL SPEAKER AT PROFESSIONAL MEETINGS.
First Latin-American School of Differential Equations, Five lectures on "The Reduction Method via Minimax". (Brasil, July 1981). First Latin American Meeting in Applied Mathematics, Three lectures on "Minimax Methods and Nonlinear Problems" (Chile, December 1981). First Colombian Symposium in Functional Analysis, Three lectures on "Variational Methods" (Medellín-Colombia, August 1981). Course on Variational Methods of the International Center for Theoretical Physics (Trieste, November, 1981), Five lectures on "Variational Methods". Lectures on Nonlinear problems at the College on Variational Methods and Analysis (International Centre for Theoretical Physics, Trieste, January 1988). Second Latin American Meeting in Analysis, Bogota-Colombia, November 1992, "Problemas elipticos semilineales". Mississippi State University Annual Conference on Differential Equations, "Bifurcation and Radial Solutions to Boundary Problems", March 19/93. "Semipositone Problems", Keynote Address at the Annual Meeting of the Venezuelan Mathematical Society, Barquisimeto March 1994. "Five Lectures in Nonlinear Functional Analyis", 1994

Summer School, Medellin Colombia. "Five lectures on degree theory", 2nd. Colloqium in Differential Equations, Maracabio Venezuela, Mayo 1995. "Sign-Changing Solutions for Semilinear Dirichlet Problems", Conference on Differential Equations and Harmonic Analysis honoring Professor Victor Shapiro, Riverside California, November 1995. "Ekeland Principle and Applications", III Colloqium in Differential Equations, Maracabio Venezuela, May 1997. "Sign-changing Solutions for Second Order Elliptic Equations", First Georgia Southern Conference on Differential Equations and Computational Mathematics, Statesboro (Georgia), April 1, 2000. "Sign changing solutions for semilinear boundary value problems", SEARCDE, Wake Forest University, November 4, 2001. "Nonradial solutions for superlinear problems", Latin American School of Mathematics, Cartagena (Colombia), August 2002. Invited as principal speaker for the Eighth Mississippi State - UAB Conference on Differential Equations & Computational Simulations (May, 2009), Keynote speaker at the 10th. Conference on Differential Equations & Computational Simulations (May, 2009), Keynote speaker at the Colombian Congress of Mathematics, (July, 2015).

RESEARCH PUBLICATIONS

1. *"Condiciones suficientes para la existencia de soluciones debiles del problema de fontera $Lu = g(u(x), x)$ $x \in D$, $u(x) = 0$ $x \in \partial D$,"* Revista Colombiana de Matematicas, Vol. IX (1975), pp. 173-187.

2. (With A.C. Lazer), *"Critical point theory and the number of solutions of a nonlinear Dirichlet problem,"* Annali di Mat. Pura et App. , Vol CXX (1979), pp. 113-137.

3. (With A.C. Lazer), *"Applications of a max-min principle,"* Revista Colombiana de Matematicas, Vol. X (1976), pp. 141-149.

4. *"Hammerstein integral equations with indefinite kernel,"* Internat. J. Math. and Math. Sci., Vol 1 (1978), pp. 187-201.

5. *"A semilinear Dirichlet problem"* Canadian J. of Math., Vol. XXXI, No. 2(1979), pp. 337-340.

6. *"A two point boundary value problem with jumping nonlinearities,"* Proc. Am. Math. Soc., Vol. 79, No. 2 (1980), pp. 207-211.

7. (With P.W. Bates), *"Existence and uniqueness for a variational hyperbolic system without resonance"* Nonlinear Analysis TMA, Vol. 4, No. 6(1980), pp. 1151-1156.

8. (With P.W. Bates), *"Necessary and sufficient conditions for existence of solutions to equations with noninvertible linear part,"* Rev, Colombiana de Mat., Vol XV (1981), pp. 7-24.

9. *"Periodic solutions of the forced pendulum equation,"* Differential Equations (Editors S. Ahmad, A.C. Lazer and M. Keener), Academic Press (1980), pp. 149-160.

10. (With A.C. Lazer), *"On periodic solutions of weakly coupled systems of differential equations,"* Boll. Un. Mat. Ital., (5), 18-B(1981), pp. LS733-742.

11. *"Existence of infinitely many solutions for a class of superlinear problems,"* Bol. Soc. Mat. Mexicana, Vol. 26, No. 1 (1981), pp. 7-12.

12. *"Reduction method via minimax,"* survey paper in Differential equations, Lecture Notes in Mathematics, Springer Verlag (1982), pp. 1-20.

13. (With J.V. Goncalves), *"On multiple solutions of nonlinear elliptic equations with odd nonlinearities,"* Differential Equations, Lecture Notes in Mathematics No. 957. Springer Verlag (1982), pp. 21-33.

14. (With A.C. Lazer), *"Results on periodic solutions of parabolic equations suggested by elliptic theory,"* Boll. Un. Mat. Ital., (6), 1-B (1982), pp. 1089-1104.

15. (With R. Shivaji), "*Uniqueness of positive solutions for a class of elliptic boundary value problems,*" Proc. of the Royal Soc. of Edinburgh, 98A (1984), pp. 267-269.

16. "*On the steepest descent for nonpotential locally Lipschitzian vector fields,*" Houston J. of Math ., Vol 11(1985), pp. 45-48.

17. "*Uniqueness of positive solutions for a sublinear Dirichlet problem,*" Proc. Symp. on Pure Math , Vol 45-1(1986), pp. 243-252.

18. (With R. Shivaji), "*Multiple solutions for a Dirichlet problem with jumping nonlinearities,*" Trends in the Theory and Practice of Nonlinear Analysis, North Holland (1985), pp. 97-101.

19. (With P. Khalili), "*Addendum to: Existence and uniqueness of solutions to nonlinear disspative wave equations,*" Nonlinear Analysis Theory Methods and Applications , Vol. 10, No. 12,.(1986), pp. 1485-86.

20. "*On a Rayleigh quotient,*" American Math. Monthly , Vol. 90, (1983), pp. 712-713.

21. (With R. Shivaji) "*Multiple solutions for a Dirichlet problem with jumping nonlinearities II,*" Journal of Math. Analysis and Appl . Vol. 133, No. 2 (1988) 509-528.

22. (With A. Kurepa), "*Infinitely many radially symmetric solutions to a superlinear Dirichlet problem in a ball,*" Proc. Amer. Math. Soc., Vol. 101, No. 1 (1987), pp. 57-64.

23. (With A. Kurepa), "*Energy analysis of a nonlinear singular differential equation,*" Revista Colombiana de Matematicas, Vol. XXI (1987), pp. 155-166.

24. (With S. Unsurangsie), "*A semilinear wave equation with nonmonotone nonlinearity,*" Pacific Journal of Mathematics, Vol. 132, No. 2 (1988).

25. (With R. Shivaji), "*Non-negative solutions for a class of non-positone problems,*" Proc. Royal Soc. Edinburgh, 108A, (1988), pp. 291-302.

26. (With A. Kurepa), "*Radially symmetric solutions to a superlinear Dirichlet problem in a ball with jumping nonlinearities,*" Trans. Amer. Math. Soc ., Vol. 315, No. 1, (1989), pp. 353-372.

27. (With R. Shivaji) "*Non-negative solutions for a class of radially symmetric Non-positone problems*", Proc. Amer. Math. Soc. , Vol. 106, No. 3 (1989), pp. 735-740.

28. (With K. J. Brown and R. Shivaji) "*Non-existence of radially symmetric nonnegative solutions for a class of semipositone problems*", Differential and Integral Equations, Vol. 2, No. 4 (1989), pp. 541-545.

29. (With R. Shivaji), "*Non-negative solutions to a semilinear Dirichlet problem in a ball are positive and radially symmetric,*" Comm. in Partial Differential Equations, Vol. 14, No. 8-9, (1989), pp. 1091-1100.

30. (With I. Ali and R. Shivaji), "*Uniqueness and stability of nonnegative solutions for a semipositone Dirichlet problems in the ball*", Proc. Amer. Math. Soc., Vol. 117 (1993), pp. 775-782.

31. (With J. Garner and R. Shivaji), "*Existence results for classes of sublinear semipositone problems*", Results in Mathematics, Vol. 23 (1993), pp. 214-220.

32. (With J. Cossio), "*A bifurcation theorem and applications*", Dynamic Systems and Applications, Vol. 2 (1993), pp. 221-226.

33. (With J. Cossio), "*Multiple radial solutions for a semilinear Dirichlet problem in a ball*", Rev. Colombiana de Matemáticas, Vol. XXVII (1993), pp. 15-24.

34. (With S. Gadam) "*The Lazer Mckenna conjecture for radial solutions in the R^n ball*", Electronic Journal of Differential Equations, Volume 1993, No. 7.

35. (With S. Gadam), "*Uniqueness of the stable and unstable positive solution for semipositone problems*", Nonlinear Analysis T.M.A., Vol. 22, No. 4 (1994), pp. 425-429.

36. (With A. Kurepa), "*Radially symmetric solutions to a Dirichlet problem involving critical exponents*", Trans. Amer. Math. Soc., Vol. 343, No. 2 (1994), pp. 907-926.

37. (With J. Cossio) *"Multiple solutions for a semilinear Dirichlet problem"*, SIAM J. Math. Anal., Vol. 25 (1994), pp. 1554-1561.

38. (With S. Gadam and R. Shivaji) *"Branches of radial solutions for semipositone problems"*, J. Differential Equations, Vol. 120, No. 1 (1995), pp. 30-45.

39. (With M. Hassanpour and R. Shivaji) *"Uniqueness of nonnegative solutions for a semipositone problem with concave nonlinearity"*, Comm. Partial Differential Equations, Vol 20, No. 11-12 (1995), pp. 1927-1936.

40. (With I. Ali) *"Positive solutions for a semilinear elliptic problem with critical exponent"*, Nonlinear Analysis T.M.A., Vol. 27, No. 3 (1996), pp. 327-338.

41. (With A. Kurepa) *"Radial solutions to a Dirichlet problem involving critical exponents when N=6"*, Trans. Amer. Math. Soc., Vol. 348, No. 2 (1996), pp. 781-798.

42. (With V. Anuradha and R. Shivaji) *"Existence results for semipositone systems"*, Journal of Dynamic Systems and Applications, Vol. 5, No. 2, (1996), pp. 219-228.

43. (With J. Cossio and J. M. Neuberger) *"A sign-changing solution for a superlinear Dirichlet problem"*, Rocky Mountain Journal of Mathematics, Vol. 27, No. 4 (1997), pp. 1041-1053.

44. (With Jose F. Caicedo) *"A semilinear wave equation with derivative of nonlinearity containing multiple eigenvalues of infinite multiplicity"*, Contemporary Mathematics, Vol. 208 (1997), pp. 111-132.

45. (With S. Gadam and R. Shivaji) *"Positive solutions curves of semipositone problems with concave nonlinearities"*, Proc. Royal Society of Edinburgh, Vol. 127A (1997), pp. 921-934.

46. (With Jorge Cossio and John M. Neuberger) *"On multiple solutions of a nonlinear Dirichlet problem"*, Nonlinear Analysis TMA, Vol.30, No. 6 (1997), pp. 3657-3662.

47 (Wtih J. Cossio) *"El principio variacional de Ekeland, rango de operadores no lineales y una ecuación de onda semilineal"*, III Coloquio sobre ecuaciones differenciales y sus aplicaciones, Universidad del Zulia, Venezuela (1997).

48. (With J. Cossio and J. M. Neuberger) *"A Minmax principle, index of the critical point, and existence of sign changing solutions to elliptic boundary value problems"*, Electronic Journal of Differential Equations (http://ejde.math.swt.edu), Vol. 1998 (1998), No. 2, pp. 1-18.

49. (With R. Shivaji) *"Positive solutions for a concave semipositone Dirichlet problem"*, Nonlinear Analysis TMA, Vol. 31, No. 1-2 (1998), pp. 91-98.

50. (With H. Kuiper) *"On the number of radially symmetric solutions to Dirichlet problems with jumping nonlinearities of superlinear order"*, Transactions of the Amer. Math. Soc., Vol. 351, No. 5 (1999), 1919-1945.

51. (With M. Finan) *"Existence of many sign-changing solutions to a superlinear Dirichlet problem on thin annuli"*, Topological Methods in Nonlinear Analysis. Vol.13, No.2, (1999), pp. 273-280.

52. (With John W. Neuberger) *"An inverse function theorem"*, Contemporary Mathematics, Vol. 221 (1999), 127-132.

53. (With S. Gadam and R. Shivaji) *"Evolution of positive solutions curves of semipositone problems with concave nonlinearities"*, Journal of Mathematical Analysis and Applications, 245 (2000), pp. 282-293.

54. (With C. Maya and R. Shivaji) *"An existence result for a class of sublinear semipositone systems"*, Dynamics of Continuous, Discrete and Impulsive Systems, Volume 7, Number 4 (2000), pp. 533-540.

55. (With M. Finan) *"Existence of many positive solutions to a superlinear Dirichlet problem on thin annuli"*, Nonlinear Differential Equations, Electron. J. Diff. Eqns., Conf. 05 (2000), pp. 21-31.

56. (With J. W. Neuberger) *"A inverse function theorem via continuous Newton's method"*, Nonlinear Analysis 47 (2001), pp. 3223-3229.

57. (With C. Maya and R. Shivaji) *"Positivity of nonnegative solutions for cooperative semipositone systems"*, Proceedings of Dynamic Systems and Applications, Volume 3, (2001), 113-120.

58. (With J. W. Neuberger) *"A local inversion principle of the Nash-Moser type"*, SIAM J. Math. Analysis, Vol. 33, No. 4 (2001), pp. 989-993.

59. (With H. Aduén) *"Infinitely many nonradial solutions to a superlinear Dirichlet Problem"*, Proc. Amer. Math. Soc. 131 (2003), 835-843.

60. *"Infinitely many solutions for a superlinear Neumann Problem in tilable regions"*, Evolution Equations, Lecture Notes in Pure and Applied Mathematics, Marcel Decker Inc., Vol. 234, 2003, pp.71-76.

61. (With M. Clapp) *"The effect of the domain topology on the number of sign changing solutions of an elliptic equation with critical nonlinearity"*, Nonlinearity 16(2003), 579-590.

62. (With Pavel Drabek and John M. Neuberger) *"A sign-changing solution for a superlinear Dirichlet problem"*, Electron. J. Diff. Eqns., http://ejde.math.swt.edu, Conf. 10, 2003, pp. 101-107.

63. (With C. Chang) *"Asymptotic behavior of the potential and existence of a periodic solution for a second order differential equation"*, Applicable Analysis, Vol. 82, No. 11, November 2003, pp. 1029-1038.

64. (With M Chhetri and R. Shivaji) *"Stability Analysis of Positive Solutions to Classes of Reaction-Diffusion Systems"*, Differential and Integral Equations, **17** (2004), No. 3-4, pp. 391-406.

65. *"Semilinear equations with discrete spectrum"*, Contemporary Mathematics, **357** (2005), pp. 1-16.

66. (With J. Cossio) *"Construction of a Radial Solution to a Superlinear Dirichlet Problem that Changes Sign Exactly Once "*, Progress in Nonlinear Differential Equations, Vol. 66 (2005), 149-160.

67. (With M. Clapp) *"Upper estimates for the energy of solutions of nonhomogeneous boundary value problems"*, Proc. Amer. Math. Soc. 134 (2006), no. 1, 167–175.

68. (With S. Caldwell, R. Shivaji, and S. Unsurangsie) *"Positive solutions for classes of multiparameter elliptic semipositone problems"*, Electronic Journal of Differential Equations, Vol. 2007(2007), No. 96 pp. 1-10.

69. (With J. Kwon and C. M. Tan) *"Infinitely many radial solutions for a sub-super critical Dirichlet boundary value problem in a ball"*, Electronic Journal of Differential Equations, Vol. 2007(2007), No. 111 pp. 1-10.

70. (With H. Aduén and J. Cossio) *"Uniqueness of large radial solutions and existence of nonradial solutions for a superlinear Dirichlet problem in annulii"*, Journal of Mathematical Analysis and Applications, Vol. 337 (2008), pp. 348-359.

71. (With J. F. Caicedo) *"A semilinear wave equation with smooth data and no resonance having no continuous solution,"* Discrete and Continuous Dynamical Systems, Vol. 24, (2009), pp. 653-658.

72. (With V. Padrón) *"Classification of radial solutions arising in the study of thermal structures with thermal equilibrium or no flux at the boundary,"* Memoirs of the Amer. Math. Soc. **208**, (2010), pp. 1-88.

73. (With B. Preskill)*"Existence of solutions for a semilinear wave equation with non-monotone nonlinearity,* Continuous and Discrete Dynamical Systems, Series A, Vol. 28, No. 2, (2010), pp. 649-658.

74. *"Nonexistence of Continuous Solutions for a Semilinear Wave Equations with Smooth Data,* Water Waves, ed. M. F. Mahmood, D. Henderson and H. Segur, World Scientific (2010).

75. (With C. Chang) *"A Variational Characterization of the Fucik Spectrum and Applications"*, Revista Colombiana de Matemáticas, Vol. 44, No. 1, (2010), pp. 23-40.

76. (With J.F. Caicedo and R. Duque) *"Existence of Solutions for a Wave Equation with Non-monotone Nonlinearity and a Small Parameter"*, Milan Journal of Mathematics, Volume 79, Number 1, (2011), pp. 207-220.

77. (With J. Cossio and C. Velez) *"Existence and Qualitative Properties of Solutions fo Nonlinear Dirichlet Problems"*, Discrete and Continuous Dynamical Systems, Volume 33, Number 1, January 2013, doi:10.3934/dcds.2013.33.123

78. (With J. Cossio and C. Velez) *"Existence of seven solutions for an asymptotically linear Dirichlet problem without symmetries"*, Ann. Mat. Pura Appl. (4) 192 (2013), no. 4, 607-619.

79. (With L. Sankar and R. Shivaji) *"Uniqueness of Nonnegative Solutions for Semipositone Problems on Exterior Domains"*, J. Math. Anal. Appl. 394 (2012), no. 1, 432-437.

80. (With R. Pardo) *"Resonant solutions and turning points in an elliptic problem with oscillatory boundary conditions*, Pacific J. Math. 257 (2012), no. 1, 75-90.

81. (With E. Ko and R. Shivaji) *"A uniqueness result for a singular nonlinear eigenvalue problem"*, Proc. Roy. Soc. Edinburgh Sect. A 143 (2013), no. 4, 739-744.

82. (,With J. Caicedo, R. Duque and A. Sanjun) *"Arturo Existence of Lp-solutions for a semilinear wave equation with non-monotone nonlinearity"*, Discrete Contin. Dyn. Syst. Ser. S 7 (2014), no. 6, 1193-1202.

83. (With V. Ardila and J. Caicedo), *"Existence of non-degenerate continua of singular radial solutions for several classes of semilinear elliptic problems"*, Milan J. Math. 82 (2014), no. 2, 313-330.

84. (With J.C. Cardeño), *"Existence of positive solutions for a superlinear elliptic system with Neumann boundary condition"*, Proceedings of the Variational and Topological Methods: Theory, Applications, Numerical Simulations, and Open Problems, 23-30, Electron. J. Differ. Equ. Conf., 21.

85. (With R. Pardo), *"A priori bounds for positive solutions of subcritical elliptic equations"*, Rev. Mat. Complut. 28 (2015), no. 3, 715-731.

86. (With E. Fischer), *"Infinitely many rotationally symmetric solutions to a class of semilinear Laplace-Beltrami equations on spheres"*, Canad. Math. Bull. 58 (2015), no. 4, 723-729.

87. (With R. Pardo) *"Branches of positive solutions of subcritical elliptic equations in convex domains"*, Discrete Contin. Dyn. Syst. (2015), Dynamical systems, differential equations and applications. 10th AIMS Conference. Suppl., 230-238.

88. (With V. Padrón) *"Existence of infinitely many continua of radial singular polytropes with gain-loss function"*, Contributions to nonlinear elliptic equations and systems, 77-86, Progr. Nonlinear Differential Equations Appl., 86, Birkhuser/Springer, (2015).

89. (With. R. Pardo) *"Branches of positive solutions for subcritical elliptic equations"*, Contributions to nonlinear elliptic equations and systems, 87-97, Progr. Nonlinear Differential Equations Appl., 86, Birkhuser/Springer, (2015).

90. (With D.G. de Figueiredo and E. Lopera) *"Existence of positive solutions for a semipositone p-Laplacian problem"*, Proc. Roy. Soc. Edinburgh Sect. A 146 (2016), no. 3, 475-482.

91. (With I. Ventura) *"Existence of solutions to a semilinear elliptic boundary value problem with augmented Morse index bigger than two"*, Topol. Methods Nonlinear Anal. 49 (2017), no. 1, 233-244.

92. (With G. Reyes) *"Existence of multiple solutions for a semilinear problem and a counterexample by E. N. Dancer."*, Commun. Pure Appl. Anal. 16 (2017), no. 4, 1135-1145.

93. (With R. Pardo) *"A priori estimates for positive solutions to subcritical elliptic problems in a class of non convex regions"*, Discrete Contin. Dyn. Syst. Ser. B 22 (2017), no. 3, 783-790.

94. (With J. Caicedo and A. Sanjuan) *"Bifurcation at infinity for a semilinear wave equation with non-monotone nonlinearity"*, Discrete Contin. Dyn. Syst. 37 (2017), no. 4, 1857-1865.

95. (With. R. Pardo) *"Infinitely many stability switches in a problem with sublinear oscillatory boundary conditions"*, J. Dynam. Differential Equations 29 (2017), no. 2, 485-499.

96. (With. R. Shivaji and D. Costa) *"Multiple positive solutions for a class of variational systems"*, Topol. Methods Nonlinear Anal. 50 (2017), no. 1, 1-8.

97. (With J. Caicedo, Caicedo, R. Duque, and A. Sanjun) *"The semilinear wave equation with non-monotone nonlinearity: a review,* Rend. Istit. Mat. Univ. Trieste 49 (2017), 207-214.

OTHER PUBLICATIONS

1. *"Métodos variacionales en Análisis Funcional No Lineal,"* monograph published by the Colombian Math. Soc., (1980).

2. *"Métodos de reducción via minimax,"* monograph published by the University of Sao Paulo (Brasil) (1981).

3. (With Saul Hahn) *"Ecuaciones Diferenciales Parciales,"* monograph published by the Centro de Investigacion del I.P.N. (Mexico).

4. *"Introduccion al Estudio de Ecuaciones Differenciales no Lineales con Condicion de Frontera"*, Universidad Nacional de Colombia (1992).

5. (With R. Shivaji) *"Semipositone Problems,"* Semigroups of Nonlinear Operations and Applications, (1993), pp. 109-119.

6. *"Bifurcation Theory and Radial Solutions to Elliptic Bounday Value Problems,"* Applied Mathematics and Computation **65** (1994), pp. 223-230.

7. (With Jorge Cossio) *"Soluciones no triviales para un problema de Dirichlet superlineal sin Simetrías,"* Memorias de la Escuela de Verano, Medellín Colombia (1994).

8. *"Review of Solvability and Bifurcation of Nonlinear Equations by P. Drabek."* Siam Review, Vol. 36, No. 1, (1994), 119-121.

9. (With I. Ali Taqi) *"Regularity for an elliptic problem"*, Rev. Tec. Univ. Zulia, Vol. 17, No. 1 (1994), pp. 43-45.

10. (With J. Cossio) *"El principio variacional de Ekeland, rango de operadores no lineales y una ecuación de onda semilieal"*, Memorias del II Coloquio en Ecuaciones Diferenciales, Maracaibo (1977).

11. *"Ecuaciones diferenciales elípticas semilineales"*, Memorias III Escuela de Verano Geometría Diferencial, Ecuaciones Diferenciales Parciales y Análisis Nemérico, Academia Colombiana de Ciencias (1996).

12. *"La revista Electronic Journal of Differential Equations"*, Rev. Acad. Colombiana Cienc., Vol 21, (1997), pp. 125-129.

13. *"A perspective on the contributions of Alan C. Lazer to critical point theory"*, Nonlinear Differential Equations, Electron. J. Diff. Eqns., Conf. 05 (2000), pp. 13-19.

14. (With C. Maya and R. Shivaji) *"Nonlinear eigenvalue problems with semipositone structure"*, Nonlinear Differential Equations, Electron. J. Diff. Eqns., Conf. 05 (2000), pp. 33-49.

15. (With J. Cossio) *"Invarianza del grado de Leray-Schauder bajo el método de reducción"*, Lecturas Matemáticas, Vol. 21, No. 2 (2000).

16. (With J. Dix) *"Ten Years of the Electronic Journal of Differential Equations"*, J. Math. Phys. Sci., 2002, 1, 1, 5-7.

17. (With J. Navarro) "*Algebra Lineal con Hojas de Cálculo*", Editorial Trillas, México (2008)

GRANTS AND FELLOWSHIPS.

Ford Foundation Fellowship (National University of Colombia 1973). Laws Fellowship (University of Cincinnati 1974-1975). Taft Fellowship (University of Cincinnati, 1976-1977). Lefschetz Instructorship (Centro de Investigacion del I.P.N., Mexico, 1977-78). Conacyt Grant PNCB 236 (Mexico, 1980-82). Visiting Professor at Argonne National Laboratory (May-July 1987). NSF Grant No. INT-8704327 to participate in the US-Colombia Mathematics Meeting (Bogota, July 1987).Texas Advanced Research Program Grant (May 1988-August 1989). Texas Advanced Research Program Grants (1989-1990 and 1990-1991). National Science Foundation Grants No DMS-8905936, DMS-9215027, INT-9631897, CSEMS-9987215, and OISE-0703715. Sloan/CGE grant to study the feasibility of a Professional Masters Degree. Simons Foundation grant (September 2012 to August 2017).

DOCTORAL STUDENTS:

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PROFESSIONAL SERVICE.

Member of the Editorial Board of of Revista Colombiana de Matematicas, International Journal of Mathematics, and Communication on Nonlinear Analysis. Co-organizer of the 1983, 1986, 1992, 1997 and 2002 Texas Seminar in Differential Equations. Chair of the Human Right Committee of the American Mathematical Society (2008-09). Representative of the American Mathematical Society at the Committee on Undergraduate Programs in Mathematics (2007-10). Member of the Books Donation Committee of the AMS.

THE ELECTRONIC JOURNAL OF DIFFERENTIAL EQUATIONS

Co-founder and Managing Editor of the *Electronic Journal of Differential Equations*. This is a pioneering journal in paperless publication. It publishes in excess of 150 research papers per year, in addition to several monographs and proceedings of conferences. Since its inception it has been made accessible free of charge via the Internet.