Araceli Bonifant
Curriculum Vitae

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University of Rhode Island,
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Visa status: US citizen.

EDUCATION:

PhD in Mathematics: 1997, Centro de Investigación y Estudios Avanzados del Instituto Politécnico Nacional (CINVESTAV - IPN), Mexico.

B.S. in Physics and Mathematics: 1989, Escuela Superior de Física y Matemáticas del Instituto Politécnico Nacional (ESFM-IPN), Mexico.

EXPERIENCE:

Professor: July 2020 - Present.
Mathematics Department, University of Rhode Island, Kingston, RI.

Associate Professor: July 2010 - June 2020.
Mathematics Department, University of Rhode Island, Kingston, RI.

Visiting Associate Professor: September 2018 - August 31, 2019, (sabbatical year).
Institute for Mathematical Sciences and Mathematics Department, Stony Brook University, Stony Brook, NY.

Visiting Researcher: February 12nd. - April 21st., 2012.
Institute for Computational and Experimental Research in Mathematics (ICERM). Special semester in "Complex and Arithmetic Dynamics," Providence, RI.

Visiting Associate Professor: September 2011 - August 31, 2012, (sabbatical year).
Institute for Mathematical Sciences and Mathematics Department, Stony Brook University, Stony Brook, NY.

Assistant Professor: September 2004 - June 2010.
Mathematics Department, University of Rhode Island, Kingston, RI.

Lecturer: September 2001 - August 2004.
Institute for Mathematical Sciences, Stony Brook University, Stony Brook, NY.

Researcher: September 1999 - August 2001.
Instituto de Matemáticas, Universidad Nacional Autónoma de México (IMATE-UNAM) Cuernavaca, Mor. Mexico.

Visiting Assistant Professor: January 1998 - August 1999.
University of Michigan, Ann Arbor, MI.

Assistant Professor: September 1987 - December 1997.
Escuela Superior de Física y Matemáticas del Instituto Politécnico Nacional (ESFM-IPN) Mexico, DF, Mexico.

Visiting Scholar: February 1995 - June 1996, and February 1994 - June 1994.
University of Michigan, Ann Arbor, MI.

RESEARCH INTERESTS:

Holomorphic Dynamical Systems, Several Complex Variables, Complex Analysis Geometry and Topology.

JOURNAL PUBLICATIONS:

All papers are available at http://www.math.uri.edu/ bonifant/papers.html

1. *Growth of degree for iterates of rational maps in several variables,* (with J. E. Fornæss). Indiana University Mathematics Journal, Vol.49 (2000), No.2, 751–778.
2. *Self maps of $\mathbb{P}^2$ with invariant elliptic curves,* (with M. Dabija). Complex Manifolds and Hyperbolic Geometry, Contemporary Mathematics Vol. 311, (2002), 1–25.
3. *Contractive Curves,* (with M. Dabija). International Journal of Mathematics and Mathematical Sciences, Vol. 30 (2002), No.4, 227–238.
4. *Attractors,* (with J. E. Fornæss). Complex geometry (Göttingen, 2000), 73–84, Springer, Berlin, (2002).
5. *Elliptic Curves as Attractors in $\mathbb{P}^2$ Part 1: Dynamics,* (with M. Dabija and J. Milnor). Experimental Mathematics Journal, Vol. 16, (2007), No. 4, 385–420.
6. *Schwarzian Derivatives and Cylinder Maps,* (with J. Milnor). Fields Institute Communications, Vol. **53**, 1–21. "Holomorphic Dynamics and Renormalization", Lyubich and Yampolsky editors, 2008.
7. *On Cubic Polynomial Maps with Periodic Critical Orbit, Part II: Escape Regions,* (with J. Kiwi and J. Milnor). Conform. Geom. Dyn. **14** (2010), 68–112.
8. *Errata for "Cubic Polynomial Maps with Periodic Critical Orbit, Part II: Escape Regions"* (with J. Kiwi and J. Milnor). Conform. Geom. Dyn. **14**, (2010), 190–193.
9. *On real and Complex Cubic Curves* (with J. Milnor). L'Enseignement Mathématique (2) **63**, (2017), 21–61. DOI: 10.4171/LEM/63-1/2-2.
10. *On Antipode Preserving Cubic Maps: the Fjord Theorem,* (with X. Buff and J. Milnor). Proc. London Math. Soc. (3) **116** (2018) 670–728. DOI:10.1112/plms.12075
11. *Group Actions, Divisors, and Plane Curves,* (with John Milnor) Bulletin of the American Mathematical Society (2) **57** (2020) 171–267. doi.org/10.1090/bull/1681
12. *The W. Thurston Algorithm Applied to Real Polynomial Maps,* (with J. Milnor and S. Sutherland), to appear in Journal of Conformal Geometry and Dynamics arXiv:2005.07800 [math.DS].

MANUSCRIPTS IN PREPARATION:

1. *The W. Thurston Algorithm for Real Quadratic Rational Maps,* (with J. Milnor and S. Sutherland), arXiv:2009.10147 [math.DS] (September 21, 2020).
2. *Real Quadratic Rational Maps I, the Moduli Space*, (with A. Bonifant and S. Sutherland). In Preparation (2020).
3. *Real Quadratic Rational Maps II, the Thurston Pullback Algorithm*, (with A. Bonifant and S. Sutherland).
4. *Parabolic Implosion and the Relative Green's Function* (with J. Milnor and S. Sutherland).
5. *On Local Connectivity of $\mathcal{S}_2$ in the Parameter Space of Cubic Polynomials,* (with T. Sharland).
6. *Elliptic Curves as Attractors in $\mathbb{P}^2$ Part 2: The Transverse Lyapunov Exponent,* (with M. Dabija, who passed away in 2003) and J. Milnor.

7. *On Cubic Polynomial Maps with Periodic Critical Orbit, Part III: External Rays,* (with J. Milnor).
8. *Antipode Preserving Cubic Maps II: Tongues and the Ring Locus,* (with X. Buff and J. Milnor).
9. *Relations between the Boundaries of Escape Regions of the Parameter Space of Cubic Polynomials,* (with C. Estabrooks and T. Sharland).

BOOKS EDITED:

1. *Collected Papers of John Milnor VI, Dynamics* (*1953–2000*). American Mathematical Society, Providence, RI, December 2012.
2. *Frontiers in Complex Dynamics: In celebration of John Milnor's 80th. birthday* (with M. Lyubich and S. Sutherland). Princeton University Press, March 2014.
3. *Collected Papers of John Milnor VII, Dynamics* (*1984–2012*). American Mathematical Society, Providence, R.I, November, 2014.

GRANTS: Funded

1. ADVANCE Grant URI, *April 2005 - June 2006*.
2. U.S.-Mexico Workshop: Holomorphic Dynamics on the Riemann Sphere, *May 23-26 2007,* Zacatecas, Mexico. Co-PI NSF Award ID 0715285. (With R. Pérez (IUPUI).)
3. URI Foundation Competitive Grants *awarded: December, 2008.* (With N. Eaton (URI) and B. Kaskosz (URI).)
4. BIRS 2011 workshop *Frontiers in Complex Dynamics, Celebrating John Milnor's 80th birthday*, February 20-25, 2011, Banff International Research Station in Canada, *awarded: January, 2010.* (With M. Lyubich (Stony Brook U.).)
5. Clay Mathematics Institute, workshop *Frontiers in Complex Dynamics, Celebrating John Milnor's 80th birthday*, February 20-25, 2011, in Banff, Canada, *awarded: May 2010.* (With M. Lyubich (Stony Brook U.) and S. Sutherland (Stony Brook U.).)
6. Frontiers in Complex Dynamics (Celebrating John Milnor's 80th birthday) Co-PI. NSF-DMS1053323, February 20-25, 2011, in Banff, Canada; *awarded: January, 2011.* (With M. Lyubich (Stony Brook U.) and S. Sutherland (Stony Brook U.).)
7. URI (Provost, Dean of Arts and Sciences, and Math Department) funding for the conference Frontiers in Complex Dynamics, February 20-25, 2011, in Banff, Canada.
8. Institute for Computational and Experimental Research in Mathematics ICERM: *Special semester in "Complex and Arithmetic Dynamics"* February 12 - April 21, 2012.
9. *Conference in Holomorphic Dynamics in One and Several Variables; awarded: January 17, 2014.* PI-NSF Proposal Number 1408261; (With S. Sutherland (Stony Brook U.).)
10. Clay Mathematics Institute, *Conference in Holomorphic Dynamics in One and Several Variables; awarded: February 4, 2014.* (With T. Ahn (POSTECH) and S. Sutherland (Stony Brook U.).)
11. Pacific Institute for the Mathematical Sciences support for the *2016 North-American workshop in Holomorphic Dynamics, awarded: January 2016.* (With C. Cabrera (IMATE-Cuernavaca), J. Seade (IMATE-UNAM) and S. Sutherland (Stony Brook U.).)

12. Fields Institute, support for the *2017 Workshop on New Frontiers in Complex Dynamics: From One To Several Variables*, *awarded January 2016.* (With L. Lomonaco (U. of Sao Paulo), M. Yampolsky (U. of Toronto) and E. Uhre (Roskilde U.).)
13. NSF-Fields Institute support for the *2017 Workshop on New Frontiers in Complex Dynamics: From One to Several Variables*, *awarded April 11, 2016.* (With L. Lomonaco (U. of Sao Paulo), M. Yampolsky (U. of Toronto) and E. Uhre (Roskilde U.).)
14. AIM Workshop: Problems in Several Complex Variables, *awarded: December 18, 2017*. (With L. Lanzani (Syracuse U.), L. Vivas (Ohio State U.) and P. Gupta (Rutgers U.).)

RESEARCH FELLOWSHIPS:

1. Consejo Nacional de Educación Tecnológica (COSNET) Mexico, *1988 - 1989.*
2. Consejo Nacional de Ciencia y Tecnología (CONACYT) Mexico, *September 1991 - August 1995.*
3. Sistema Nacional de Investigadores (SNI) Mexico, *July 2001 - August 2003.*
4. Beaupre Hope and Heritage Fund, URI; *awarded: June 2006, January 2009, March 2010, May 2013, September 2014, April 2016, May 2016 and October 2017.*
5. Provost Faculty Development Support, URI; *awarded: October, 2017*

PhD THESES DIRECTED:

1. Erin Denette, Ph.D May 2016
2. Chad Estabrooks, Ph.D. May 2018 (with Tom Sharland)
3. Vanessa Leclerc (with Tom Sharland)
4. Scott Destromp (with Tom Sharland)

PhD INTERNATIONAL THESIS REVIEWED:

1. Mr. Dinesh Kumar: Ph.D Thesis *Semigroups of Transcendental Entire Functions and their Dynamical Properties,* University of Delhi, May 2016.

INVITED PRESENTATIONS:

1. Seminar at Department of Mathematics, University of Kansas, Lawrence, Kansas, November 1996. *On the dynamics of some unexpected meromorphic mappings of* $\mathbb{P}^2$.
2. International Symposium on Complex Analysis, Cuernavaca, Mexico, November 1996. *On the dynamics of some unexpected meromorphic mappings of* $\mathbb{P}^2$.
3. International Conference on Dynamical Systems. Cuernavaca, Mexico, June 1996. *On the dynamics of self-maps of* $\mathbb{P}^2$.
4. XXX Congress of the Mexican Mathematical Society, Aguascalientes, Mexico, October 1997. *What is complex dynamics?.*
5. Instituto de Matemáticas, Universidad Nacional Autónoma de México UNAM, Campus Morelia, Mexico, October 1997. *On the dynamics of self maps of* $\mathbb{P}^n$.
6. Third Joint International Meeting AMS-SMM; Oaxaca, Mexico, December 1997. *Degrees of non-linearity of rational maps in several variables.*
7. Fifth Joint International Meeting AMS-SMM, Morelia, Mexico, May 23-26, 2001. *Attractors.*
8. Dynamics Seminar, Boston University, November 29, 2004. *Dynamics of Elementary Maps in* $\mathbb{P}^2(\mathbb{C})$.
9. Pi-Mu-Epsilon (Induction Ceremony, University of Rhode Island), December 7, 2004. *Fractals.*

10. SACNAS National Conference, Denver, CO., September 29, 2005. *Workshop in Dynamics*, (with R. Perez(IUPUI)).
11. SACNAS National Conference, Denver, CO., September 29, 2005. *A Taste of Dynamics in Higher Dimensions.*
12. Dynamics Seminar, Cornell University, November 28, 2005. *Elementary Maps on* $\mathbb{P}^2$.
13. Holomorphic Dynamics Workshop, March 7-11, 2006. Fields Institute, Toronto, Canada. *Intermingled Basins.*
14. Dynamics and Several Complex Variables Seminar at University of Michigan, March 13, 2006. *Intermingled Basins.*
15. Dynamics Seminar, Stony Brook University, March 31, 2006. *Some many-to-one cylinder maps.*
16. Dynamics Seminar, Stony Brook University, September 22, 2006. *Schwarzian derivatives and cylinder maps.*
17. Midwest Dynamical Systems Seminar at Indiana University - Purdue University Indianapolis, October 13 - 15, 2006. *Some examples of cylinder maps.*
18. Several Complex Variables Seminar, Mathematics Department, University of Michigan, Ann Arbor, December 10, 2007. *Schwarzian Derivatives and Cylinder Maps.*
19. Geometry and Topology Seminar, Department of Mathematics, Brown University, March 12, 2008. *Schwarzian Derivatives and Cylinder Maps.*
20. AMS Sectional Meetings: Special Session on Real and Complex Dynamics of Rational Difference Equations with Applications, Wesleyan University, CT., October 11, 2008. *Critically Periodic Cubic Polynomials.*
21. Several Complex Variables and Complex Dynamics Seminar, Mathematics Department, University of Michigan, Ann Arbor, February 9, 2009. *Cubic Polynomial Maps with Periodic Critical Orbit.*
22. Mathematics Department at URI, November 18, 2009. *Overview on Research.*
23. International Conference on Dynamical Systems. Celebrating the 70th anniversary of Jacob Palis, Búzios, Rio de Janeiro, de February 25 to March 5, 2010. *Topological Properties of the period p-curve of Cubic Polynomials.*
24. Dynamics of Rational Maps on the Riemann sphere, University of Warwick, 22-24 March, 2010. *Topological Properties of the period p-curve of Cubic Polynomials.*
25. Tenth Prairie Analysis Seminar, Department of Mathematics University of Kansas Lawrence, October 29-30, 2010. *Topological Properties of the period p-curve of Cubic Polynomials.*
26. AMS Sectional Meeting: Special Session on Dynamics of Rational Systems of Difference Equations with Applications, College of the Holy Cross Worcester, MA, April 9-10, 2011. *The Period p-Curve for Cubic Polynomials.*
27. Dynamics Seminar, Institute for Mathematical Sciences, Stony Brook University, September 16, 2011. *Wonders of Cubic Rational Maps.*
28. Moduli Spaces Associated to Dynamical Systems, Institute for Computational and Experimental Research in Mathematics (ICERM), April 17, 2012. *Antipode Preserving Cubic Rational Maps.*
29. Institute for Mathematical Sciences, Stony Brook University, May 23rd., 2012. *Antipode Preserving Cubic Rational Maps.*

30. Dynamics Seminar, Institute for Mathematical Sciences, Stony Brook University, September 28th., 2012. *Elliptic curves as attractors.*
31. AMS Special Session on Complex Dynamics, 2013 Joint Mathematical Meeting, San Diego, January 9–12, 2013. *Antipode Preserving Cubic Rational Maps and Herman rings.*
32. Complex Analysis and Dynamics Seminar, Department of Mathematics Graduate Center of CUNY, February 15th., 2013. *Antipode Preserving Cubic Rational Maps and Herman Rings.*
33. Mathematics Colloquium, Stony Brook University, March 7th., 2013. *Non-Archimedean Methods in Complex Dynamics.*
34. Advanced School and Workshop in Real and Complex Dynamics, Trieste Italy, May 20–31, 2013. *Antipode Preserving Cubic Rational Maps and Herman Rings.*
35. ICERM-Modern Math Workshop, SACNAS 2013, San Antonio, Texas, October 2nd., 2013. *Workshop: A Tour of Dynamical Systems.*
36. 2013 CMS Winter Meeting, Ottawa, Ontario, Canada, December 6–9, 2013. *Fjords in a Parameter Space for Antipode Preserving Cubic Maps.*
37. Complex Analysis and Dynamics Seminar, Department of Mathematics, Graduate Center of CUNY, March 21, 2014. *Fjords in a Parameter Space for Antipode Preserving Cubic Maps.*
38. Sixth Iberoamerican Congress on Geometry, Special Session in Complex Dynamics. The Graduate Center, CUNY May 21st., 2014. *Non-Archimedean Methods in Complex Dynamics.*
39. XLVII Congreso Nacional de la Sociedad Matemática Mexicana, Durango, Dgo. México, October 26–31, 2014. *Cubic Rational Maps that Commute with the Antipodal Map.*
40. XLVII Congreso Nacional de la Sociedad Matemática Mexicana, Durango, Dgo. México, October 26–31, 2014. *Dynamics of Cubic Polynomials.*
41. Midwest Dynamical Systems Meeting, University of Michigan, Ann Arbor, MI, November 7–9, 2014. *Fjords in a Parameter Space for Antipode Preserving Cubic Maps.*
42. Special Session in Holomorphic Dynamics at the JMM, San Antonio, Texas, January 10–12, 2015. *Fjords in a Parameter Space for Antipode Preserving Cubic Maps.*
43. IMSXXV (Celebrating 25 years of low-dimensional dynamics at Stony Brook), May 8–12, 2015. *Points visible from zero and infinity for antipode preserving maps.*
44. Groupe de Travail en Dynamique Holomorphe, Institute of Mathematical Science, Stony Brook University, February 28, 2016. *Antipode commuting maps: a new kind of rotation number.*
45. Special Session: Holomorphic Dynamics, AMS Spring Eastern Sectional Meeting, Stony Brook University, March 19-20, 2016. *Computing the transverse Lyapunov exponent along an invariant elliptic curve.*
46. Institut de Matématiques de Toulouse, Université Paul Sabatier, April 5, 2016. *Elliptic curves: computing the transverse exponent.*
47. Complex Dynamics: Iterations, Foliations and Evolutions, Centre for Advanced Study at the Norwegian Academy of Science and Letters, Oslo, June 19–24, 2017. *Moduli space for real or complex curves in* $\mathbb{P}^2$.

48. Arithmetic Dynamics Session in the Mathematical Congress of the Americas, Montreal Canada, July 24–28, 2017. *Tongues and Tricorns in an Space of Rational Maps.*
49. Meeting of the ANR Lambda, Satellite to Tan Lei's conference, Institute Henri Poincaré, Paris France, October 26-27, 2017. *Self-antipodal orbits in a family of antipode preserving maps.*
50. Mexican Mathematicians in the World: Perspectives and Recent Contributions, Casa Matématica Oaxaca, Oaxaca, México, June 10-15, 2018. *An easy example of the Deligne-Mumford compactification.*
51. 2018 Northeastern Analysis Meeting, State University of New York at New Paltz, October 19-21, 2018. *External rays for some families of cubic polynomial maps.*
52. Complex Analysis, Dynamics and Geometry Seminar, University of Michigan, Ann Arbor, MI, November 19, 2018. *External rays for some families of cubic polynomial maps.*
53. Math Club, Stony Brook University, Stony Brook, NY, February 27, 2019. *A Family of Moduli Spaces.*
54. Spring Topology and Dynamical Systems Conference, The University of Alabama at Birmingham, March 15, 2019. *Identifications between boundaries of escape regions in $\mathcal{S}_1$ and $\mathcal{S}_2$.*
55. Workshop in Holomorphic Dynamics, March 27–30, 2019 Puebla, Mex. *Identifications between boundaries of escape regions in $\mathcal{S}_1$ and $\mathcal{S}_2$,*
56. Analytic Low-Dimensional Dynamics: a celebration of Misha Lyubich's 60th birthday, May 27-June 7, 2019, The Fields Institute. *Identifications between boundaries of escape regions in $\mathcal{S}_1$ and $\mathcal{S}_2$,*
57. Complex Dynamics in the Southern Hemisphere, January 6–10, 2020 Facultad de Matemáticas, Pontificia Universidad Católica, Santiago de Chile. *Dynamic tessallations in the space $\mathcal{S}_p$ of cubic polynomials.*
58. Colloquium Institute of Mathematics in Oaxaca Mexico, March 11, 2021 Zoom talk. *Dynamic tessallations in the space of cubic polynomials.*
59. XXVI Academic Reunion of Physics and Mathematics, ESFM-IPN Mexico, August 27, 2021 Zoom talk. *Mapeos Reales Cuadráticos Racionales.*
60. 52 years of the Henkin-Ramirez kernel (a tribute to Professor Ramirez de Arellano's career), CINVESTAV-IPN, Mexico, September 21, 2021 Zoom talk. *Real Quadratic Rational Maps.*

CONTRIBUTED PRESENTATIONS:

1. Midwest Several Complex Variables Meeting, Ann Arbor, Michigan. October 1999. *Growth of degree of iterates of rational maps in several variables .*
2. IV National Meeting of Dynamical Systems, San Luis Potosi, Mexico 2000. *The Ghys Question.*
3. Biholomorphic Mappings Conference-AIM, Palo Alto California. August 2000. *Self Maps of $\mathbb{P}^2$ with invariant elliptic curves.*
4. II Iberoamerican Congress of Geometry, Guanajuato, Mexico. January 2001. *Contractive Curves.*
5. Midwest Several Complex Variables, Ann Arbor, MI. October 2001. *Attractors.*
6. Complex Dynamics in Higher Dimensions, Research Institute for Mathematical Sciences, Kyoto University, December 1–5, 2003. *Modified Desboves maps of $\mathbb{P}^2$: The Transverse Lyapunov Exponent.*

7. Complex Dynamics: 25 years after the appearance of the Mandelbrot Set. AMS-IMS-SIAM, Snowbird, UT., June 2004. *Computing the Transverse Lyapunov Exponent.*
8. Difference Equations Seminar, Mathematics Department, URI, April 29, 2005. *On Lyness' Difference Equation* $u_{n+2}u_n = u_{n+1} + a$.
9. The Forty First Spring Topology and Dynamics Conference 2007, Rolla Missouri, March 29–31, 2007. *Dynamics of maps with zero Schwarzian Derivative.*
10. Dynamics Seminar URI, October 4 and 11, 2017. *Moduli space for real or complex curves in* $\mathbb{P}^2$.
11. Dynamics Seminar URI, November 15, 2017. *Parameter spaces in complex dynamics.*

OTHER CONFERENCES ATTENDED:

1. School of Non-Vanishing Theorems and Effective Results, Trieste, Italy: April - May, 2000.
2. Around Dynamics, SUNY at Stony Brook, NY: March 9–11, 2001.
3. Rencontre Systemes dynamiques en plusieurs variables complexes, Luminy, France: June 18–22, 2001.
4. School of Dynamical Systems, Trieste, Italy: July-August, 2001.
5. Einstein Chair Conference, Graduate Center NY: September 20–21, 2002.
6. Mather Fest, Princeton, NJ: October 18–19, 2002.
7. Midwest Complex Dynamics, Bloomington, IN: October 26–27, 2002.
8. International Conference in Dynamical Systems and Geometry, Cuernavaca, Mexico: January 6–11, 2003.
9. Dynamics in the Complex Plane, Søminestation, Holbæk Denmark: June 18–22, 2003.
10. Conformal Dynamics, Hyperbolic Geometry, and Continued Fractions: Conference in honor of John Hamal Hubbard; June 13–17, 2005 CIRM Luminy France.
11. Partially Hyperbolic Dynamics, Laminations and Teichmüller Flow Workshop: January 5–9, 2006 Fields Institute, Research in Mathematical Sciences, Toronto, Ontario.
12. Siegel disks, parabolic implosion and area of Julia sets: May 9–11, 2006 Université de Cergy-Pointoise, France.
13. Dynamique et Géométrie Complexes: June 12–16, 2006. CIRM, Luminy-Marseille, France.
14. Course Planning Workshops at URI: August 28 and 29, 2006 (Understanding Today's Students; and Presenting and Explaining.)
15. Developments in Understanding Symplectic Geometry and Topology, Stony Brook University: October 12 and 13, 2006.
16. Workshop on Computational and Conformal Geometry, Stony Brook University: April 20–22, 2007.
17. Geometry and the Imagination, Princeton University: June 7–11, 2007.
18. Ultrametric Dynamical Days, PUC, Santiago, Chile: January 21 – February 1, 2008.
19. NSF Regional Grants Conference: April 7–8, 2008, Hosted by the University of Rhode Island.

20. Congress in memory of Adrien Douady: May 26–30, 2008, Institut Henri Poincaré. Paris.
21. Multivariable Complex Dynamics: March 1–6, 2009, Banff International Research Station, Canada.
22. A Conference in Teichmüller Theory and Related Topics: March 20–21, 2009, The Graduate Center of CUNY.
23. 24th. Annual Geometry Festival: April 17–19, 2009.
24. A Conference on Conformal Dynamics and Hyperbolic Geometry, The Graduate Center of CUNY: October 21–23, 2010.
25. Conference Dynamics and Geometry, Institut Henri Poincaré, Amphitheatre Hermite, Paris, France: June 20 – 24, 2011.
26. Complex and p-adic Dynamics, ICERM-Brown Providence, RI: February 13–17, 2012.
27. Global Arithmetic Dynamics, ICERM-Brown Providence, RI: March 19–23, 2012.
28. Moduli Spaces Associated to Dynamical Systems, ICERM-Brown Providence, RI: April 16–20, 2012.
29. Interactions between continuous and discrete holomorphic dynamical systems, BIRS, Banff-Canada: July 8 – 13, 2012.
30. Advanced School and Workshop in Real and Complex Dynamics, Trieste Italy, May 20–31, 2013.
31. Mini-School in Geometry, Stony Brook University, April 9, 2014.
32. What's Next? the mathematical legacy of Bill Thurston, Cornell University, June 23–27, 2014.
33. International Congress of Mathematicians (ICM 2014), August 13–21, 2014, Coex, Seoul, Korea.
34. Dynamical Developments: a conference in Complex Dynamics and Teichmüller theory. (In honor of the 70th. birthday of John Hubbard). Jacobs University, Bremen, August 17–21, 2015.
35. Parameter Problems in Analytic Dynamics (Celebrating Sebastian van Strien's 60th birthday). Imperial College London, June 27-July 1, 2016.
36. Complex Dynamics and Quasi-Conformal Geometry in Memory of Tan Lei, Université d'Angers, France, October 23-25, 2017.
37. On Geometric Complexity of Julia Sets II, Banach Center, Online Conference, August 24 - 27, 2020.
38. 52 years of the Henkin-Ramirez kernel, a tribute to Professor Ramírez de Arellano's career. CINVESTAV-IPN Mexico, Zoom Meeting, September 20 - 23, 2021.
39. Advancing Bridges in Complex Dynamics, CIRM, Luminy, Marseille, Hybrid conference, attended by Zoom, September 20 - 24, 2021.

CONFERENCES/WORKSHOPS ORGANIZED:

1. U.S.-Mexico Workshop: Holomorphic Dynamics on the Riemann Sphere. In the frame of the VII International Joint Meeting of the American Mathematical Society and the Mexican Mathematical Society (AMS-SMM) in Zacatecas, Mexico, May 23–26, 2007 (with R. Pérez (IUPUI)).

2. Advances in Low Dimensional Dynamics, Stony Brook University, June 8 - 13, 2009 (with M. Lyubich (Stony Brook U.), M. Martens (Stony Brook U.), J. Milnor (Stony Brook U.) and S. Sutherland (Stony Brook U.)).
3. Frontiers in Complex Dynamics (Celebrating John Milnor's achievements in Mathematics) Feb. 21-25, 2011 Banff, Canada (with M. Lyubich (Stony Brook U.) and S. Sutherland (Stony Brook U.)).
4. Geometric and Algebraic Structures in Mathematics (Celebrating Dennis Sullivan's 70th. Birthday) May 26 - June 4, 2011, Stony Brook University (with J. Bowman (Stony Brook U.), M. Lyubich (Stony Brook U.) and S. Sutherland (Stony Brook U.)).
5. Geometría Compleja, Sistemas Dinámicos y Teoría de Números: Celebrando los 70 años de Alberto Verjovsky, Enero 7 - 11, 2013. Instituto de Matemáticas, UNAM, Cuernavaca. *Member of Scientific Committee.*
6. Holomorphic Dynamics, (Special session) Mathematical Congress of the Americas 2013, August 5-9, 2013, Guanajuato, Mexico (with C. Cabrera (IMATE-Cuernavaca); J. Kiwi (PUC, Chile) and J. V. Pereira (IMPA)).
7. Holomorphic Dynamics in One and Several Variables, a Satellite Conference to ICM 2014, Gyeongju, South Korea, August 23–26, 2014 (with T. Ahn (POSTECH) and S. Sutherland (Stony Brook U.)).
8. IMSXXV (Celebrating 25 years of low-dimensional dynamics at Stony Brook, Stony Brook University, May 8 – May 12, 2015 (with M. Lyubich (Stony Brook U.), M. Martens (Stony Brook U.), J. Milnor (Stony Brook U.) and S. Sutherland (Stony Brook U.)).
9. North-American workshop in Holomorphic Dynamics (Celebrating John Milnor's 85th. Birthday), May 27 - June 4, 2016, Cancún México (with C. Cabrera (IMATE-Cuernavaca), J. Seade (IMATE-UNAM) and S. Sutherland (Stony Brook U.)).
10. Workshop on New Frontiers in Complex Dynamics: From One To Several Variables, July 17–21, 2017 (with L. Lomonaco (U. of Sao Paulo), M. Yampolsky (Toronto U.) and E. Uhre(Roskilde U.)).
11. Problems on holomorphic function spaces and complex dynamics, April 8-12, 2019, American Institute of Mathematics, San Jose, California (with T. Firsova (KSU) , A.-K. Gallagher, P. Gupta (Rutgers U.), L. Lanzani (Syracuse U.), and L. Vivas (Ohio State U.)).

PROFESSIONAL SERVICE:

Referee for Professional Journals

Discrete and Continuous Dynamical Systems, Annales Scientifiques de l'Ecole Normale Supérieure, Advances in Mathematics, Fondecyt Chile, Fundamenta Mathematicae, Proceedings of the AMS, Physica D, Michigan Journal, Nonlinearity and Morfismos (graduate magazine CINVESTAV-IPN Mexico).

Reviewer for Professional Journals

Mathematical Reviews.

CURRICULUM DEVELOPMENT:

University of Rhode Island (URI) (Course Offering Proposals):

1. Introduction to Chaotic Dynamical Systems, Mth 455: April, 2007.
2. Dynamical Systems, Mth 555: September, 2010.

OUTREACH ACTIVITIES:

Mathematics Summer Camp for high school students, Stony Brook University

1. July 27th. - August 7th., 2009. Instructor of *Knot Theory* course (*one-week).*
2. July 25th. - August 5th., 2011. Instructor of *Fractals* course (*one-week).*
3. July 30th. - August 3th., 2012. Instructor of *Dynamical Systems* course (*one-week).*
4. July 15th. - July 26th., 2013. Instructor of *Dynamical Systems* course (*two-week).*
5. July 14th. - July 25th., 2014. Instructor of *The trace-determinant plane* course (*two-week).*

SACNAS

1. ICERM-Modern Math Workshop, SACNAS 2013, San Antonio, Texas, October 2nd., 2013. *Workshop: A Tour of Dynamical Systems,*

COURSES TAKEN:

1. Sakai 101, *September 29, 2010. URI*
2. Basic Brightspace Course, *July 1, 2020, URI*
3. Using Zoom for Engaging Pedagogy, *July 23, 2020, URI*
4. Hybrid Online Bootcamp, *August 2-9, 2020, URI*

ACADEMIC SERVICE UNIVERSITY OF RHODE ISLAND (URI):

Committees and Service Work University level:

1. Arts & Sciences Curriculum Committee, September 1, 2010 – May 2018.
2. Academic Program Review Committee, 2015-2016

Committee and Service Work Mathematics Department:

1. Member of the Assessment Committee, Fall 2006.
2. Member of the Graduate Committee, Fall 2007 – Fall 2008 and Fall 2020 – Present.
3. Member of the Undergraduate Committee, Fall 2007 – Present. Chair (2016-2018) and (2019-2020).
4. Member of the hiring committee of the search for assistant professor of mathematics URI: September 2012 - March 2013; September 2016- March 2017; September 2017- March 2018.
5. Member of the Math Chair Search Committee, 2013-2014.
6. Chair of Faculty Search Committee, Mathematics Department URI, Fall 2014 and Spring 2015.

Extra Curricular Activities Organized:

1. Organizer of the lecture by John Milnor,*Computability of Julia Sets following Braverman and Yampolsky*, May 16, 2005. Mathematics Department, URI.
2. Series of two talks on *Basics of Dynamics in One Complex Variable*, to prepare graduate and undergraduate students of the Mathematics Department at URI for Milnor's Lecture, May 2005.

Other Advising:

1. Advising of mathematics majors at URI.
2. Instructor of 4 independent studies at undergraduate level.
3. Member of several Masters and PhD thesis committees at URI (14).
4. Several independent studies for Master and PhD students (26).
5. Member of the PhD thesis committee of Ying Chi at Stony Brook University August 7, 2015.

6. Member of the PhD qualifying exam of Melinda Carranza-Trejo, CIMAT (Centro de Investigación en Matemáticas), December 6, 2019.

ACADEMIC SERVICE STONY BROOK UNIVERSITY:

1. Member of PhD Theses Committees.
2. Director of the Undergraduate Research Project:
    1. Methab Alladin: *Geometric Problems in Complex Analysis,* Summer 2003.
    2. Amy Roberts: *Dynamics of elliptic functions,* September 2003 - May 2004.
3. Instructor of WiSE 187, (Introduction to Research: Course offer to freshman Undergraduate Women in Engineering and Science).
    1. *Application of self-similarity to evaluation of integrals:* February 19 - March 7, 2002.
    2. *Knots and Surfaces:* January 28 - February 13, 2003.
    3. *Curve Fitting:* March 11 - March 30, 2004.
4. Instructor of an Independent Study in Real Higher Dimensional Dynamics, Spring, 2003.
5. Organizer of Seminars.
    1. Dynamics Learning Seminar, September 2002 – August 2004.
    2. Dynamics Seminar, September 2001 – June 2002.
6. In charge of the Stony Brook preprint series., September 2002 - August 2004. http://www.math.stonybrook.edu/ims-preprint-server
7. In charge of the Dynamics web-page, September 2002-August 2004. http://www.math.stonybrook.edu/dynamical-systems

ACADEMIC SERVICE INSTITUTE OF MATHEMATICS - CUERNAVACA:

1. Organizer of the Dynamics Seminar, September 2000 - August 2001.
2. Graduate Director, March 2000 - August 2001.
3. Organizer of the Second Summer School of Mathematics, May 2001.

ACADEMIC SERVICE ESCUELA SUPERIOR DE FISICA Y MATEMATICAS:

1. Member of the Undergraduate Counsel for Technical Advice at ESFM-IPN: *September 1992 – July 1993.*
2. Chair of the Mathematical Analysis Committee at ESFM-IPN *September 1992 – February 1994.*
3. Member of the Committee to choose "The Best Bachelor's Thesis in Engineering, Physics and Mathematics", at National level in Mexico: *twice: 1996, and 1992.*
4. Member of the Hiring Committee at ESFM-IPN during 1997: *(3 times).*
5. Member of the Committee of Bachelor's Thesis Defenses at ESFM-IPN, during 1997: *(4 times).*
6. Coordinator of Basic Courses for XXX Congress of the Mexican Mathematical Society, Aguascalientes, Mexico, October 1997.
7. Service on several Committees.

LANGUAGES SPOKEN:

English, Spanish.

COURSES TAUGHT:

Undergraduate- non proof oriented

Calculus I
Calculus II
Calculus III
Applied Calculus I
Applied Calculus II
Differential Equations
Differential Equations Dynamics and Chaos
Advanced Engineering Mathematics I
Introduction to Finite Mathematics
Introduction to Chaotic Dynamical Systems
Functions of One Complex Variable
Linear Algebra
Mathematics I for Engineers (Mex.)
Mathematics I for Social Sciences (Mex.)
Mathematics II for Business majors (Mex.)
Mathematical Problem Solving with Computers
Precalculus (Mex.)

Graduate

Complex Analysis
Introduction to Chaotic Dynamical Systems I
Introduction to Holomorphic Dynamical Systems I
Introduction to Holomorpic Dynamical Systems II (Mex.)
Mathematical Analysis and Topology I
Mathematical Analysis and Topology II
Several Complex Variables
Linear Algebra
Topology

Undergraduate- proof oriented

Algebra (Group theory, Rings, Fields)
Euclidean and Analytic Geometry (Mex.)
Complex Analysis I
Complex Analysis II (Mex.)
Differential Geometry (Mex.)
Introduction to Mathematical Analysis I
Introduction to Mathematical Analysis II
Introduction to Chaotic Dynamical Systems
Real Analysis II (Lebesgue measure) (Mex.)
Algebraic Structures (Mex.)
Calculus I (Mex.)
Calculus II (Mex.)
Seminar in Holomorphic Dynamics (Stony Brook U.)
Linear Algebra I (Mex.)
Linear Algebra II (Mex.)
Multi-variable Calculus (Mex.)
Number Theory (URI)