Professor RICARDO CORTEZ

Tulane University
MATHEMATICS
William Larkin Duren Professor
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Research and Teaching Specializations

Computational Fluid Dynamics, Numerical Methods and Scientific Computing, Biological Fluid Flow Applications

Education

Ph D, University of California, Berkeley, 1995.
Major: Applied Mathematics
Dissertation Title: Impulse-Based Particle Methods for Fluid Flow

BS, Arizona State University, 1988.
Major: Mechanical Engineering

BS, Arizona State University, 1986.
Major: Mathematics
Supporting Areas of Emphasis: applied mathematics

Professional Positions

Academic

Professor, Mathematics Department, Tulane University. (July 2007 - Present).
Associate Professor, Mathematics Department, Tulane University. (July 2002 - 2007).
Assistant Professor, Mathematics Department, Tulane University. (July 1998 - June 2002).

Other

Director, Center for Computational Science, Tulane University. (June 2006 - Present).
Associate Director, Center for Computational Science, Tulane University. (June 2001 - June 2006).
Courant Instructor, Courant Institute of Mathematical Sciences. (September 1996 - July 1998).
NSF Mathematical Sciences Postdoctoral Research Fellow, Courant Institute of Mathematical Sciences. (September 1995 - July 1998).
Graduate Student Research Assistant, Lawrence Berkeley Laboratory / University of California, Berkeley. (1991 - 1995).
Teaching Assistant, Berkeley Summer Mathematics Institute. (1991 - 1993).
Graduate Student Teaching Assistant, University of California, Berkeley. (1989 - 1992).

Professional Memberships

Association of Mathematics Teacher Educators. (September 2013 - Present).
Mathematical Association of America. (July 2012 - Present).
Society of Industrial and Applied Mathematics. (2009 - Present).
Board member (1994-96), Society for Advancement of Chicanos and Native Americans in Science. (1991 - Present).

Awards and Honors

Blackwell-Tapia Prize for Research and Mentoring, US Mathematics Institutes. (November 2012).

SACNAS Distinguished Undergraduate Institution Mentor Award, Society for Advancement of Chicanos and Native Americans in Science. (October 2010).

SACNAS Presidential award. (2006).

Career Enhancement Fellowship for Junior Faculty from Underrepresented Groups, Woodrow Wilson National Fellowship Foundation. (2001).

Bernard Friedman Award for outstanding dissertation research, UC Berkeley. (1995).

NSF Postdoctoral Research Fellowship. (1995).

TEACHING

Teaching Experience

Tulane University

MATH 3130 (DUREN Course, spring 2015) Understanding our World Through Mathematical Modeling

MATH 224, INTRO TO APPLIED MATH.

MATH 309, LINEAR ALGEBRA.

MATH 3310, SCIENTIFIC COMPUTING I.

MATH 424, ORDINARY DIFFERENTL EQUA.

MATH 4240, ORDINARY DIFFERENTL EQUA.

MATH 4470, ANALYT METHOD APPL MATH.

MATH 499, ELASTIC ROD MODEL.

MATH 624, ORDINARY DIFFERENTL EQUA.

MATH 6240, ORDINARY DIFFERENTL EQUA.

MATH 6310, SCIENTIFIC COMPUTING I.

MATH 6470, ANALY METHODS APPL MATH.

MATH 7310, APPLIED MATHEMATICS I.

MATH 7320, APPLIED MATH II.

MATH 7350, Scientific Computing I.

MATH 7570, Scientific Computatn II.

MATH 773, Working Seminar in Fluid Dynamics.

MATH 7740, TOPICS IN COMPUTATION.

MATH 798, DYNAMICAL SYSTEMS.

MATH 7980, Stokes Flow Simulations, 3 courses.

MATH 1210, CALCULUS I.

MATH 1220, CALCULUS II.

MATH 2210, CALCULUS III.

Non-Credit Instruction

Short course on Computational Mathematics, San Salvador, El Salvador. Sponsored by the International Mathematical Union, 22 participants. (May 31, 2010 - June 17, 2010).

Directed Student Learning

Advised Postdoctoral Scholar. (August 2012 - Present).
Advised: Jacek Wrobel

Advised Postdoctoral Scholar. (August 2012 - Present).
Advised: Julie Simons

Advised Postdoctoral Scholar. (October 2012 - June 2013).
 Advised: Hoang-Ngan Nguyen

Advised Postdoctoral Scholar. (October 2009 - June 2012).
 Advised: Bree Cummins

Advised Postdoctoral Scholar. (July 2007 - July 2010).
 Advised: Ricardo Ortiz

Advised Postdoctoral Scholar. (August 2008 - March 2011).
 Advised: Yuen Yick (Tony) Kwan

Advised Doctoral Student. (April 2014 - Present).
 Advised: Forest Mannan

Advised Doctoral Student. (February 2011 - Present).
 Advised: Franz Hoffmann

Advised Doctoral Student. (2011 - Present).
 Advised: Elham Ahmadi

Advised Doctoral Student. (2008 - September 2012).
 Advised: Shanshan Shen

Advised Doctoral Student. (2007 - August 2012).
 Advised: Hoang-Ngan Nguyen

Advised Doctoral Student, "A Method to model membrane permeability." (2006 - May 2012).
 Advised: Marian Hernandez-Viera

Advised Doctoral Student, "New minimal representations of self propelled swimmers in low reynolds number regime using regularized fundamental solutions with applications to collective flow." (August 2005 - May 2010).
 Advised: Shilpa Priya Boindala

Advised Doctoral Student. (August 2005 - May 2007).
 Advised: Christopher Duncan

Advised Doctoral Student. (August 2004 - May 2007).
 Advised: Svetlana Tlupova

Dissertation Committee Member. (June 2014).
 Advised: Jianjun Huang

Dissertation Committee Member, "Three-dimensional modeling of passive and active migration of living cells in a microchannel." (2012 - January 2014).
 Advised: Lan Hongzhi

Dissertation Committee Member. (2011 - May 2013).
 Advised: Katharine Hamlington

Dissertation Committee Member. (2009 - 2012).
 Advised: Jeremy Dewar

Dissertation Committee Member, "Central-Upwind Scheme for Savage-Hutter Type Model of Submarine Landslides and Generated Tsunami Waves." (2009 - May 2012).
Advised: Jason Miller

Dissertation Committee Member. (2008 - 2011).
Advised: Bradford Smith

Dissertation Committee Member. (2009 - June 2011).
Advised: Charles Maggio

Dissertation Committee Member. (2008 - 2010).
Advised: Sarah Lukens

Dissertation Committee Member. (2004 - 2008).
Advised: Benjamin Vanderlei

Advised Master's Thesis Student, "AIRWAY ON A CHIP: DATA PROCESSING OF OCCLUDED PULMONARY AIRWAY REOPENING AT BIFURCATIONS." (2012 - April 2013).
Advised: Matthew Van Houten

Advised Master's Thesis Student, "An Accurate Deterministic Projection Method for Two-Dimensional Stiff Detonation Waves." (2012 - December 2012).
Advised: Minlan Lei

Advised Master's Thesis Student, "An Adaptive Artificial Viscosity Method for the Saint-Venant System." (2012 - December 2012).
Advised: Yunlong Chen

Advised Master's Thesis Student, "Numerical simulatio of a 2D choanoflagellate moving in a Stokes fluid." (2010 - May 2012).
Advised: Buyun Yang

Advised Master's Thesis Student, "Finite difference methods for solving advection-diffusion models." (2010 - May 2012).
Advised: Justin Walbeck

Advised Master's Thesis Student, "Method of Images for Regularized Stokeslets in 2D." (April 2010 - December 2010).
Advised: Johannes Vonk

Advised Master's Thesis Student, "Data Analysis of brain activity resulting from stimuli." (July 2009 - May 2010).
Advised: Nick Sparks

Advised Master's Student (Non-Thesis), "A Comparison of Symplectic Integrators." (August 2009 - December 2009).
Advised: Edward Selser

Advised Master's Thesis Student, "MODELING DIFFUSION, ADVECTION AND CHEMICAL REACTION OF TWO FLUIDS IN CONFINED GEOMETRIES USING A POTENTIAL BARRIER." (May 2009 - July 2009).
Advised: Franz Hoffmann

Undergraduate Honors Thesis, Director, "Numerically Calculating Vacuum Energy and Casimir Forces in Irregular Cavities." (August 2012 - April 2013).
Advised: Bryan Quigley

Undergraduate Honors Thesis, Director, "Monte Carlo Light Propagation Modeling." (August 2012 - April 2013).
Advised: Elizabeth Scott

Undergraduate Honors Thesis, Reader, "La tradición y la modernización en "Viridiana", "El ángel exterminador", y "Simón del desierto"." (August 2012 - April 2013).
Advised: Amanda Foy

Undergraduate Honors Thesis, Director, "Mathematical Models for Energy Price Processes." (August 2011 - May 2012).
Advised: Andrew Hamilton

Undergraduate Honors Thesis, Reader, "Mathematical Models for Energy Price Processes." (August 2011 - May 2012).
Advised: Meredith Tremblay

Undergraduate Honors Thesis, Director, "Numerical Methods Applied to Derivative Pricing." (2010 - 2011).
Advised: Chao Feng

Undergraduate Honors Thesis, Director, "Mathematical Models for Energy Price Processes." (2010 - 2011).
Advised: Sun Chen

Undergraduate Honors Thesis, Reader, "A microfluidic model of pulmonary airway reopening at biforcations." (2010 - 2011).
Advised: John Pitre

Supervised Research. (January 2008 - May 2011).
Advised: Christina Yee

Undergraduate Honors Thesis, Reader, "Elastic Rod Model for DNA." (2009 - 2010).
Advised: Austin Griffith

Supervised Research, "COMPUTATIONAL ANALYSIS AND DESIGN OF A MICROFLUIDIC MIXING CHAMBER FOR USE IN A BIOSENSOR." (June 2009 - July 2009).
Advised: Alan Liu, Seth Figueroa, Jonathan Custodio

Senior project, "Continuous models of the transmission of West Nile virus." (August 2008 - May 2009).
Advised: Cavin Ward-Caviness

Undergraduate Honors Thesis, Director, "The Destabilization of a two-tiered health care system: the impact of hurricane Katrina on the uninsured." (2007 - 2008).
Advised: Morgen Miller

Supervised Research, "Computational models of the spread of West Nile Virus." (June 2008 - July 2008).
Advised: Austin Griffith, Maren Leopold

Supervised Research, "Computational models of the spread of West Nile Virus." (June 2008 - July 2008).
Advised: Justin Walbeck, Timothy Clinton, Barry Jackson, Caira Dyer

Supervised Research, "Computational models of the spread of West Nile Virus." (June 2008 - July 2008).
    Advised: Namdi Brandon, Barry Jackson

Undergraduate Honors Thesis, Director, "Modeling the mucous layer near cilia." (2006).
    Advised: Michael Finnern

Supervised Research. (2003 - 2006).
    Advised: Edgar Lobaton, Heather Flores, Stefan Mendez-Diez, Rob Blake, Robert Miller, Luis Perez, Josephine Ainley, Sandra Durkin, Rafael Embid, Morgen Miller, Raeanna Poplus, Eric Malvaez

Senior project, "The Effects of Two Parameters on a Reaction-Diffusion System." (2000).
    Advised: Jennifer Semtner

RESEARCH

Published Intellectual Contributions

Refereed Journal Articles

SIMONS, J., FAUCI, L. J., CORTEZ, R. (2014). A fully three-dimensional model of the interaction of driven elastic filaments in a Stokes flow with applications to sperm motility. *To appear in J. Biomechanics*.

Aranda, V., CORTEZ, R., FAUCI, L. J. (2014). A model of Stokesian peristalsis and vesicle transport in a three-dimensional closed cavity. *To appear in J. Biomechanics*.

CORTEZ, R., Anhalt, C. O. (2014). MORE ON "MODEL ELICITING ACTIVITIES". *Mathematics Teaching in the Middle School, 19*(6), 324-326.

Felton, M. D., Anhalt, C. O., CORTEZ, R. (2015). Going With the Flow: Challenging Students to Make Assumptions. *Mathematics Teaching in the Middle School, 20*(6), 342-349.

Anhalt, C. O., CORTEZ, R. (2015). Mathematical Modeling: A Structured Process. *Mathematics Teacher, 108*(6), 446-452.

CORTEZ, R., Varela, D. (2015). A General System of Images for Regularized Stokeslets and Other Elements Near a Plane Wall. *J. Comput. Phys., 285*, 41-54.

CORTEZ, R., Nguyen, H.-N. (2014). Reduction of the Regularization Error of the Method of Regularized Stokeslets for a Rigid Object Immersed in a Three-Dimensional Stokes Flow. *Communications in Computational Physics, 15*(1), 126-152.

WROBEL, J., CORTEZ, R., FAUCI, L. J. (2014). Modeling viscoelastic networks in Stokes flow. *Physics of Fluids, 26*, 113102.

Nguyen, H., CORTEZ, R., FAUCI, L. J. (2014). Computing flows around microorganisms: slender-body theory and beyond. *American Mathematical Monthly, 121*(9), 810-823.

SIMONS, J., Olson, S., CORTEZ, R., FAUCI, L. J. (2014). The dynamics of sperm detachment from epithelium in a coupled fluid-biochemical model of hyperactivated motility. *Journal of Theoretical Biology, 354*, 81-94.

Hoffmann, F., CORTEZ, R. (2014). A fast numerical method for computing doubly-periodic regularized Stokes flow in 3D. *J. Comput. Phys., 258*, 1-13. http://http://www.sciencedirect.com/science/article/pii/S0021999113007080

Hamlington, K., FUJIOKA, H., CORTEZ, R., GAVER, D. P. (2013). Evaluation of Grid-Based and Grid-Free Methods to Model Microchannel Transport-Reaction. *SIAM Journal of Scientific Computing, 35*(4), B846-B867.

Olson, S. D., Lim, S., CORTEZ, R. (2013). Modeling the dynamics of an elastic rod with intrinsic curvature and twist using a regularized Stokes formulation. *J. Comput. Phys., 238*, 169-187.

Leiderman, K., Bouzarth, E. L., CORTEZ, R., Layton, A. T. (2013). A Regularization Method for the Numerical Solution of Periodic Stokes Flow. *J. Comput. Phys., 236*, 187-202.

CUMMINS, B., CORTEZ, R., HYMAN, J., FOPPA, I. M., Walbeck, J. (2012). A spatial model of mosquito host-seeking behavior. *PLOS Computational Biology, 8*(5), e1002500.

CORTEZ, R., NICHOLAS, M. J. (2012). Slender Body Theory for Stokes Flows with Regularized Forces. *CAMCoS, 7*(1), 33-62.

NGUYEN, H. V., ORTIZ, R., CORTEZ, R., FAUCI, L. J. (2011). The action of waving cylindrical rings in a viscous fluid.. *J. Fluid Mech., 671*, 574-586.

CHRISPELL, J. C., CORTEZ, R., KHISMATULLIN, D. B., FAUCI, L. J. (2011). Shape oscillations of a droplet in an Oldroyd-B fluid. *Physica D, 240*(20), 1593-1601.

Aranda, V., CORTEZ, R., FAUCI, L. J. (2011). Stokesian peristaltic pumping in a three-dimensional tube with a phase-shifted asymmetry. *Physics of Fluids, 23*, 081901.

CORTEZ, R., Cummins, B., Leiderman, K., Varela, D. (2010). Computation of three-dimensional Brinkman Flows Using Regularized Methods. *J. Comput. Phys., 229*(20), 7609-7624.

Tlupova, S., CORTEZ, R. (2009). Boundary Integral Solutions of Coupled Stokes and Darcy Flows. *J. Comput. Phys., 228*(1), 158-179.

Cisneros, L., Kessler, J., ORTIZ, R., CORTEZ, R., Bees, M. (2008). Unexpected bipolar flagellar arrangements and long-range flows driven by bacteria near solid boundaries. *Phys. Rev. Lett., 101*(16), 168102.

Ainley, J., Durkin, S., Embid, R., Boindala, P., CORTEZ, R. (2008). The Method of Images for Regularized Stokeslets. *J. Comput. Phys., 227*(9), 4600-4616.

Cisneros, L., CORTEZ, R., Dombrowski, C., Goldstein, R., Kessler, J. (2007). Fluid dynamics of self-propelled micro-organisms, from individuals to concentrated populations. *Experiments in Fluids, 43*, 737-753.

Cummins, B., Gedeon, T., Klapper, I., CORTEZ, R. (2007). Interaction between anthropod filiform hairs in a fluid environment. *Journal of Theoretical Biology, 247*, 266-280.

Flores, H., Lobaton, E., Mendez-Diez, S., Tlupova, S., CORTEZ, R. (2005). A Study of Bacterial Flagellar Bundling. *Bulletin of Mathematical Biology, 67*, 137-168.

Cogan, N., CORTEZ, R., FAUCI, L. J. (2005). Modeling physiological resistance in bacterial biofilms. *Bulletin of Mathematical Biology, 67*(4), 831-853.

CORTEZ, R., FAUCI, L. J., Medovikov, A. (2005). The Method of Regularized Stokeslets in Three Dimensions: Analysis, Validation, and Application to Helical Swimming. *Physics of Fluids, 17*(031504).

BISHOP, T. C., CORTEZ, R., Zhmudsky, O. O. (2004). Investigation of bend and shear waves in a geometrically exact elastic rod model. *J. Comput. Phys., 193*(2), 642-665.

CORTEZ, R. (2004). La Dinámica de Fluidos y su Rol en el Estudio de Fenómenos Biológicos. *5*(2).

CORTEZ, R., Peskin, C. S., Stockie, J., Varela, D. (2004). Parametric Resonance in Immersed Boundaries. *SIAM J. Appl. Math., 65*(2), 494-520.

CORTEZ, R., FAUCI, L. J., Cowen, N., Dillon, R. (2004). Simulation of Swimming Organisms: Coupling Internal Mechanics with External Fluid Dynamics. *Computing in Science and Engineering, 6*(3), 38-45.

Afif, A., CORTEZ, R., GAVER, D. P. (2003). Dynamics of complex interfaces. I. Rheology, diffusion and morphology.. *Journal of Chemical Physics, 118*(22), 10227-10243.

Afif, A., DE KEE, D. C., CORTEZ, R., GAVER, D. P. (2003). Dynamics of complex interfaces. II. Diffusion and morphology.. *Journal of Chemical Physics, 118*(2), 10244-10253.

Afif, A., CORTEZ, R., GAVER, D. P., DE KEE, D. C. (2003). Modeling of Mass Transport into Immiscible Polymeric Blends.. *Macromolecules, 36*, 9216-9229.

Brown, D., CORTEZ, R., Minion, M. (2001). Accurate Projection Methods for the Incompressible Navier-Stokes Equations. *J. Comput. Phys., 168*, 464-499.

CORTEZ, R. (2001). The Method of Regularized Stokeslets. *SIAM J. Sci. Comp., 23*(4), 1204-1225.

CORTEZ, R. (2000). A Vortex/impulse Method for Immersed Boundary Motion in High Reynolds Number Flows. *J. Comput. Phys., 160*, 385-400.

CORTEZ, R., Minion, M. (2000). The Blob Projection Method for Immersed Boundary Problems. *J. Comput. Phys., 161*, 428-453.

CORTEZ, R. (1998). On the Accuracy of Impulse Methods for Fluid Flow. *SIAM J. Sci. Comp., 19*(4), 1290-1302.

CORTEZ, R. (1997). Convergence of High-order Deterministic Particle Methods for the Convection-diffusion Equation. *Communications on Pure and Applied Mathematics, 50*, 1235-1260.

CORTEZ, R., Varela, D. (1997). The Dynamics of an Elastic Membrane Using the Impulse Method. *J. Comput. Phys., 138*, 224-247.

CORTEZ, R. (1996). An Impulse-based Approximation of Fluid Motion Due to Boundary Forces. *J. Comput. Phys., 123*, 341-353.

Conference Proceedings

CORTEZ, R., Davenport, D., Medina, H., Narayan, D. (2007). In Promoting Undergraduate Research in Mathematics, Joseph Gallian (Ed.), *Diversity Issues in Undergraduate Research* (pp. 237-250), . Providence, Rhode Island: American Mathematical Society.

CORTEZ, R. (2001). In L. Fauci and S. Gueron (Ed.), *A Numerical Method For Simulating Fast-Swimming Motions* (vol. 124, pp. 65-70), . Springer.

CORTEZ, R. (1996). *Impulse Variables, Vortex Dipoles and Applications.* .

Presentations Given

CORTEZ, R. (Presenter & Author), Careers in Mathematical Sciences: Workshop for Underrepresented Groups, "Good Practices for a Marketable Future in the Mathematical Sciences," Institute for Mathematics and Its Applications, Minneapolis, MN. (March 27, 2015).

CORTEZ, R. (Presenter & Author), SIAM Conference on Computational Science and Engineering, "A Computational Model of Sperm Motility Through Viscoelastic Networks," Society for Industrial and Applied Mathematics, Salt Lake City, UT. (March 16, 2015).

CORTEZ, R. (Presenter & Author), SIAM Conference on Computational Science and Engineering, "The Method of Regularized Stokeslets: Motivation and Applications," Society for Industrial and Applied Mathematics, Salt Lake City, UT. (March 15, 2015).

CORTEZ, R. (Presenter & Author), NCTM 2014 Regional Conference and Exposition: Indianapolis, Indiana, "Modeling: A Bridge between Mathematical Content and Mathematical Practice," National Council of Teachers of Mathematics, Indianapolis, IN. (October 30, 2014).

CORTEZ, R. (Presenter & Author), SACNAS National Conference, "Mathematical modeling in the curriculum for teacher preparation: A synergistic research collaboration between a mathematician and a mathematics educator," Society for Advancement of Hispanics/Chicanos and Native Americans in Science, Los Angeles, CA. (October 17, 2014).

CORTEZ, R. (Presenter & Author), MAA MathFest, "Understanding Microorganism Swimming using Mathematics," Mathematical Association of America, Portland, OR. (August 7, 2014).

CORTEZ, R. (Presenter & Author), Applied Mathematics Seminar, "An introduction to regularization computational methods for biological fluid flow problems," University of California, Merced, Merced, CA. (April 18, 2014).

CORTEZ, R. (Presenter & Author), Graduate Student Organization Seminar, "An introduction to regularization computational methods for biological fluid flow problems," Texas A&M University, College Station, TX. (March 6, 2014).

CORTEZ, R. (Presenter & Author), Applied Mathematics Undergraduate Seminar, "Modeling mosquito host-seeking behavior," Texas A&M University, College Station, TX. (March 5, 2014).

CORTEZ, R. (Presenter & Author), Anhalt, C. O. (Presenter & Author), AMTE Annual Conference, "Mathematical Modeling: Secondary Teacher Preparation in the Era of Common Core," Association of Mathematics Teacher Educators, Irvine, CA. (February 8, 2014).

CORTEZ, R. (Presenter & Author), Mathematics Colloquium, "An introduction to regularization computational methods for biological fluid flow problems," WPI, Worcester, MASS. (November 1, 2013).

CORTEZ, R. (Presenter Only), SACNAS National Conference, "What and how can mathematicians contribute to K-12 education through collaborations," SACNAS, San Antonio, TX. (October 4, 2013).

CORTEZ, R. (Presenter & Author), Mathematics Majors Seminar, "Modeling mosquito host-seeking behavior," Trinity University, San Antonio, TX. (October 1, 2013).

Hamllington, K. (Presenter & Author), FUJIOKA, H. (Author Only), CORTEZ, R. (Author Only), GAVER, D. P. (Author Only), 2013 BMES Annual Meeting, "Simulation Tools for Design Optimization of Microchannels Using Antibody-Analyte Transport-Reaction," Seattle, WA. (September 28, 2013).

CORTEZ, R. (Presenter & Author), SJTU-INS Workshop on Fluid-Structure Interaction Problems, "Dynamics of an Elastic Rod with Intrinsic Curvature Using Regularized Stokeslets," Institute of Natural Sciences, Shanghai Jiao Tong University, Shanghai, China. (July 28, 2013).

CORTEZ, R., Mathematics Colloquium, "Introduction to regularization methods for biological fluid flow problems," University of Arizona, Tucson, AZ. (March 21, 2013).

CORTEZ, R. (Presenter & Author), Blackwell-Tapia Conference, "A Spatial Model of Mosquito Host-Seeking Behavior," Institute for Computational and Experimental Research in Mathematics, Providence, RI. (November 10, 2012).

CORTEZ, R., Trends in Undergraduate Research in Mathematical Sciences, "Undergraduate Research Programs at Math Institutes: the Benefits Outweigh the Challenges," MAA, NSF, NSA, Chicago, IL. (October 28, 2012).

CORTEZ, R. (Presenter & Author), Current Topic Workshop: Mathematical and Computational Challenges in Cilia- and Flagella-Induced Fluid Dynamics, "Slender body theory using regularized Stokeslets," Mathematical Biosciences Institute, Columbus, OH. (October 16, 2012).

CORTEZ, R., Mathematics Research Colloquium, "Introduction to regularization methods for biological fluid flow problems," Southern Methodist University, Dallas, TX. (September 12, 2012).

CORTEZ, R., Mathematics Colloquium, "Introduction to the method of regularized Stokeslets for fluid flow and applications to microorganism swimming," University of Wisconsin, Madison, Madison, WI. (April 13, 2012).

CORTEZ, R. (Presenter & Author), Workshop on the dynamics of elastic biostructures in complex fluids, "Triply-periodic regularized Stokeslets," Courant Institute, NYU, New York. (February 10, 2012).

CORTEZ, R., Applied and Interdisciplinary Seminar, "Lagrangian regularization methods applied to biological fluid flow problems," University of Michigan, Ann Arbor, MI. (October 14, 2011).

CORTEZ, R. (Presenter & Author), MSRI Undergraduate program seminar, "The Gambler's Ruin is a Random Walk," Mathematical Science Research Institute, Berkeley, CA. (June 29, 2011).

CORTEZ, R. (Presenter & Author), Workshop on Individual and Collective Dynamics in Active Suspensions, "A model of collective motion of self-propelled organisms based on regularized elements," Institut Henri Poincaré (IHP), Paris, FRANCE. (June 9, 2011).

CORTEZ, R. (Presenter & Author), Blackwell-Tapia Conference, "Simulation of flagellar motions using regularization methods," Mathematical Biosciences Institute, Columbus, OH. (November 2010).

CORTEZ, R. (Presenter & Author), Cha-Cha Days Workshop, "An agent-based spatial model of mosquito behavior in West Nile Virus," College of Charleston, Charleston, SC. (September 2010).

CORTEZ, R. (Presenter & Author), Individual and Collective Fluid Mechanics of Swimming Microorganisms, "Simulation of flagellar motions near a surface," University of Glasgow, Glasgow, Scotland. (July 2010).

CORTEZ, R. (Presenter & Author), SIAM 2010 Annual Meeting, "Regularization Methods for Biological Fluid Flow Problems," Society for Industrial and Applied Mathematics, Pittsburgh, PA. (July 2010).

CORTEZ, R. (Presenter & Author), SIAM 2010 Annual Meeting, "Regularized Slender Body Theory," Society for Industrial and Applied Mathematics, Pittsburgh, PA. (July 2010).

CORTEZ, R. (Presenter & Author), Fluid dynamics, Analysis, and Numerics 2010, "Lagrangian blob methods applied to biological fluid flow problems," Duke University, Durham, NC. (June 2010).

NICHOLAS, M. J. (Presenter & Author), CORTEZ, R. (Author Only), 62nd Annual Meeting of the APS Division of Fluid Dynamics, "Regularized Slender Body Theory," American Physical Society (APS) Division of Fluid Dynamics, Minneapolis, Minnesota. (November 24, 2009).

ORTIZ, R. (Presenter & Author), CORTEZ, R. (Author Only), Bees, M. (Author Only), Kessler, J. (Author Only), Cisneros, L. (Author Only), 62nd Annual Meeting of the APS Division of Fluid Dynamics, "Simulation of flagellar motions near a rigid surface," American Physical Society (APS) Division of Fluid Dynamics, Minneapolis, Minnesota. (November 24, 2009).

CHRISPELL, J. C. (Presenter & Author), CORTEZ, R. (Author Only), KHISMATULLIN, D. B. (Author Only), FAUCI, L. J. (Author Only), 62nd Annual Meeting of the APS Division of Fluid Dynamics, "The dynamics of immersed boundaries in viscoelastic fluids," American Physical Society (APS) Division of Fluid Dynamics, Minneapolis, Minnesota. (November 24, 2009).

GAVER, D. P., Kate, H. (Presenter & Author), Hideki, F. (Author Only), Y-Y, K. (Author Only), CORTEZ, R. (Author Only), Annual Meeting of BMES, "Computational modeling of fluid dynamics and gas transport in microfluidic mixing devices," Biomedical Engineering Society, Pittsburgh, PA. (October 2009).

CORTEZ, R. (Presenter Only), SACNAS National Conference, "Mathematical Models of Microorganism Swimming Motions," SACNAS, Dallas, TX. (October 16, 2009).

CHRISPELL, J. C. (Presenter & Author), CORTEZ, R. (Author Only), KHISMATULLIN, D. B. (Author Only), FAUCI, L. J. (Author Only), MBI Workshop on Computational Challenges in Integrative Biological Modeling, "The dynamics of immersed boundaries in viscoelastic fluids," Mathematical Biosciences Institute (MBI), Columbus, Ohio. (October 5, 2009).

CORTEZ, R., Joint Mathematics Meetings, "Regularized Stokeslets and other elements with applications to biological flows," AMS, MAA, SIAM, Washington, D.C. (January 5, 2009).

CORTEZ, R., Louis Stokes Alliance for Minority Participation Fourth Transdisciplinary Research Conference, "Regularization Methods for Simulations of Biological Flows," Uniersity of Puerto Rico, Mayaguez, PR. (December 5, 2008).

CORTEZ, R., APS Division of Fluid Dynamics Annual meeting, "Interaction of Rotating Helical Bacterial Flagella With Nearby Solid," American Physical Society, San Antonio, TX. (November 25, 2008).

CORTEZ, R., LSU Colloquium, "Regularized Stokeslets and other elements with applications to biological flows," Mathematics Department, LSU. (October 23, 2008).

CORTEZ, R., LSU SIAM Student Chapter seminar, "Challenges in Computational Fluid Dynamics," LSU SIAM Student Chapter, LSU. (October 23, 2008).

CORTEZ, R., Mathematical Biology Seminar, "Regularized Stokeslets and other elements with applications to biological flows," University of Utah, Salt Lake City. (October 8, 2008).

CORTEZ, R., NJIT Applied Mathematics Colloquium, "Regularization Methods for Fluid Flow Simulations," New Jersey Institute of Technology, Newark, NJ. (February 8, 2008).

CORTEZ, R. (Presenter Only), Blackwell-Tapia conference, "Recent Advances in Computational Biofluids," Minneapolis. (November 2006).

CORTEZ, R. (Presenter & Author), AMS conference Promoting Undergraduate Research in Mathematics, "Some Strategies for Introducing and Sustaining Minority Participation in Research," AMS, Rosemont, Illinois. (September 2006).

CORTEZ, R., "Numerical Methods based on Regularized delta distributions," Scientific Computation Club, University of North Carolina. (2005).

CORTEZ, R., Biomath Seminar, "The Method of Regularized Stokeslets and its Extensions," North Carolina State University. (November 1, 2005).

CORTEZ, R., "Regularized Stokeslets for biological flow simulations," Montana State University. (August 2, 2005).

CORTEZ, R., SIAM Annual meeting, "Regularization Methods for Fluid Flow Simulations," SIAM, New Orleans. (July 2005).

CORTEZ, R., Applied Mathematical Sciences Summer Institute (AMMSI) Program, "The Gambler's Ruin is a Random Walk," AMMSI, Loyola Marymount University. (June 2005).

CORTEZ, R., "High Order Interpolation Kernels With Explicit Formulas," University of Arizona, Tucson. (March 31, 2005).

CORTEZ, R., "Theory and Application of Regularization Methods for Fluid Flow Simulations," University of California, Berkeley. (February 23, 2005).

CORTEZ, R., "Methods for Fluid Flow Simulations, Theory and Application of Regularization," University of Arizona. (April 13, 2004).

CORTEZ, R., "Algunos Modelos Matemáticos de Propagación de Epidemias," Universidad Nacional de El Salvador. (October 22, 2003).

CORTEZ, R., Computational Techniques for Moving Interfaces Workshop, "Regularized Stokeslets," Banff International Research Station, Canada. (August 2003).

CORTEZ, R., Research Experiences for Undergraduates Program, "The Gambler's Ruin is a Random Walk," Lafayette College. (June 16, 2003).

CORTEZ, R., Nonlinear Differential Equations, Mechanics and Bifurcation: A Conference in Honor of David G. Schaeffer, "The Blob Projection Method for Fluid/Interface Computations," Duke University. (May 2002).

CORTEZ, R., Applied Mathematics Colloquium, "Numerical Computation of Swimming Motions Using Regularized Stokeslets," Mathematics Department, University of Arizona. (April 19, 2002).

CORTEZ, R., Applied Mathematics seminar, "Regularized Stokeslets," Mathematics Department, University of North Carolina. (March 8, 2002).

CORTEZ, R., Mathematical Biology seminar, "Regularized Stokeslets," Mathematics Department, Duke University. (March 7, 2002).

CORTEZ, R., Summer Institute in Mathematics for Undergraduates (SIMU), "Computational Models on the Interface of Mathematics and Biology," SIMU, University of Puerto Rico, Humacao. (2001).

CORTEZ, R., 2001 SIAM Annual Meeting, "The Blob Projection Method for Fluid/Interface Computations," San Diego, California. (July 2001).

CORTEZ, R., Nonlinear Analysis 2000 -> conference, "Computation of Fast Immersed Boundary Motions," Courant Institute, New York University. (2000).

CORTEZ, R., Summer Institute in Mathematics for Undergraduates (SIMU), "Mathematical Models of Epidemic Spreading," SIMU, University of Puerto Rico, Humacao. (2000).

CORTEZ, R., 2000 SIAM Annual Meeting, "Computation of Fast Immersed Boundary Motions," Rio Grande, Puerto Rico. (July 2000).

CORTEZ, R., Summer Institute in Mathematics for Undergraduates (SIMU), "The Gambler's Ruin is a Random Walk," SIMU, University of Puerto Rico, Humacao. (1999).

CORTEZ, R., Fourth International Congress on Industrial and Applied Mathematics, "Computation of Immersed Boundary Motions Using Impulse," Edinburgh, Scotland. (July 1999).

CORTEZ, R., Computational Modeling in Biological Fluid Dynamics Workshop at the Institute for Mathematics and its Applications, "Computation of Swimming Motions," University of Minnesota. (January 1999).

CORTEZ, R., Summer Institute in Mathematics for Undergraduates (SIMU), "Mathematical Models of Pattern Formation," SIMU, University of Puerto Rico, Humacao. (1998).

CORTEZ, R., 3rd international workshop on vortex flows and related numerical methods, "Vortex/Impulse Particle Methods for Flows With Immersed Boundaries," Toulouse, France. (August 1998).

CORTEZ, R., Minicourse given at the Universidad Nacional, "Calculus Using Mathematica," San Salvador, El Salvador. (July 1998).

CORTEZ, R., V Encuentro Franco-Centroamericano de Matemática, "Dinámica de Fluidos and Aplicaciones Biológicas," San Salvador, El Salvador. (July 1998).

CORTEZ, R., Conference on Advances in Applied and Computational Mathematics in Honor of A. J. Chorin's 60th Birthday, "Immersed Boundary Problems Using Impulse," MSRI, Berkeley. (June 1998).

CORTEZ, R., SIAM 45th Anniversary Meeting, "Impulse Methods for Fluid Flow," SIAM, Stanford University. (July 1997).

CORTEZ, R., "Numerical Models of the Interaction of a Fluid and an Elastic Membrane," Mathematical and Theoretical Biology Institute (MTBI), Cornell University. (July 1996).

CORTEZ, R., 2nd international workshop on vortex flows and related, "Impulse Variables, Vortex Dipoles and Applications," Université de Moncton,Canada. (August 1995).

Media Contributions

Internet

NewWave - News from Tulane University. (December 8, 2009).

Contracts, Grants and Sponsored Research

Proposals in Review

LACEY, M. R. (Principal), WENK, C. (Co-Principal), CORTEZ, R. (Co-Principal), "EDT: Enriching Doctoral Training in Mathematics at Tulane," Sponsored by NSF, Federal, $380,047.00. (November 2014 - Present).

Active Grants

FAUCI, L. J. (Principal), CORTEZ, R. (Co-Principal), GAVER, D. P. (Co-Principal), "RTG: Mathematical and Computational Biofluids," Sponsored by NSF, Federal, $1,400,000.00. (September 2011 - August 2016).

CORTEZ, R. (Co-Principal), MCMAHON, C. P. (Principal), WENK, C. (Co-Principal), TAYLOR, C. M. (Co-Principal), "CC-NIE Networking Infrastructure: Dedicated High-Speed Science Network," Sponsored by NSF, Federal, $498,655.00. (October 1, 2013 - September 30, 2015).

CORTEZ, R. (Principal), "Beyond the Method of Regularized Stokeslet," Sponsored by National Science Foundation, Federal, $120,000.00. (August 15, 2012 - August 14, 2015).

GAVER, D. P. (Principal), CORTEZ, R. (Co-Principal), JOHN, V. T. (Co-Principal), NAVAR, L. G. (Co-Principal), CLEMENTS, J. D. (Co-Principal), "IGERT: Bioinnovation through biomedical technology and device development.," Sponsored by NSF, Tulane University, $2,999,155.00. (June 1, 2012 - May 31, 2017).

CORTEZ, R. (Principal), "Mathematical Sciences Program at SACNAS, October 15-18, 2014," Sponsored by National Science Foundation, Federal, $34,884.00. (June 15, 2014 - June 30, 2015).

Older Grants

CORTEZ, R., Bryant, R. (Principal), "MSRI-UP: MSRI's Undergraduate Program," Sponsored by NSF, Federal, $322,767.00. (July 1, 2008 - June 30, 2012).

FAUCI, L. J. (Principal), CORTEZ, R. (Co-Principal), Dillon (Co-Principal), Shelley (Co-Principal), Zhang (Co-Principal), Teran (Co-Principal), "Focused Research Group: Collaborative Research: Dynamics of," Sponsored by NSF, Federal, $1,390,973.00. (July 2007 - June 2012).

PERDEW, J. P. (Co-Principal), LEVY, L. S. (Co-Principal), GAVER, D. P. (Co-Principal), FAUCI, L. J. (Supporting), BISHOP, T. C. (Supporting), CORTEZ, R. (Co-Principal), Seidel, E. (Principal), "PKSFI: LONI Institute: Advancing Biology, Materials, and Computational Sciences," Sponsored by Louisiana Board of Regents, State, $1,371,609.00. (July 1, 2007 - June 30, 2012).

CORTEZ, R., GAVER, D. P. (Co-Principal), BLAKE, D. A. (Principal), BISHOP, T. C. (Co-Principal), FAUCI, L. J. (Co-Principal), SCHMEHL, R. (Co-Principal), SHEVKOPLYAS, S. S. (Co-Principal), "Multidisciplinary Approach to Computationally-guided Biosensor Design," Sponsored by Department of Defense - Army Research Office, Federal, $1,693,139.00. (2009 - 2010).

CORTEZ, R. (Principal), "Regularization Methods: New Theory, analysis and applications," Sponsored by NSF, Federal, $364,457.00. (2006 - 2010).

CORTEZ, R. (Co-Principal), GAVER, D. P. (Co-Principal), BLAKE, D. A. (Supporting), BISHOP, T. C. (Supporting), ASHBAUGH, H. S. (Supporting), Khonsari (BoR), M. (Principal), "Research Infrastructure Improvement," Sponsored by NSF EPSCoR, Federal, $1,913,373.00. (October 1, 2007 - September 30, 2010).

CORTEZ, R. (Co-Principal), MCMAHON, C. P. (Co-Principal), "MRI-R2: Acquisition of a cluster named Desire," Sponsored by National Science Foundation, Federal, $3,246,998.00. (2009).

CORTEZ, R. (Co-Principal), FINLAY, K. F. (Principal), MAGNUSSON, L. M. (Co-Principal), PEARCY, J. A. (Co-Principal), GASPARINI, N. (Co-Principal), ROSENHEIM, B. E. (Co-Principal), BROX, B. J. (Co-Principal), SCHNEIDER, A. M. (Co-Principal), "Computing Resources for the Dept. of Economics, EES, and Political Science in Collaboration with CCS," Sponsored by Phase II Research Enhancement Fund, Tulane University, $43,650.00. (2008 - 2009).

CORTEZ, R. (Co-Principal), FOPPA, I. M. (Principal), CAILLOUET, K. A. (Co-Principal), WESSON, D. M. (Co-Principal), FAUCI, L. J. (Co-Principal), SHERRY, T. W. (Co-Principal), Michaels, S. (Co-Principal), "Experimental and Computational Investigation of Host Density Effects on the Transmission of West Nile Virus," Sponsored by Phase II Research Enhancement Fund, Tulane University, $125,000.00. (2008 - 2009).

CORTEZ, R. (Co-Principal), MARX, P. A. (Principal), LACKNER, A. A. (Co-Principal), GARRY, R. F. (Co-Principal), GAVER, D. P. (Co-Principal), MATHER, F. J. (Co-Principal), Falkenstein, J. (Supporting), Sullivan, J. (Supporting), "University-wide Video Platforms for Real Time Collaborative Research or How to Connect Tulane's Isosceles Triangle," Sponsored by Phase II Research Enhancement Fund, Tulane University, $249,837.00. (2008 - 2009).

MISLOVE, M. W., CORTEZ, R. (Co-Principal), KALKA, M. (Principal), Lawson, T. C. (Co-Principal), MISLOVE, M. W. (Co-Principal), "Mathematics Department National Science Foundation VIGRE Grant," Sponsored by National Science Foundation, Federal, $2,368,966.00. (2003 - 2009).

OCONNOR, K. C. (Supporting), CORTEZ, R. (Principal), "REU," Sponsored by NSF, Federal. (2008).

CORTEZ, R. (Co-Principal), Eisenbud, D. (Principal), "Mathematical Sciences Research Institute Undergraduate Program (MSRI-UP)," Sponsored by National Security Agency, $155,000.00. (2007 - 2008).

FAUCI, L. J. (Principal), CORTEZ, R. (Co-Principal), Dillon (Co-Principal), Goldstein (Co-Principal), Omoto (Co-Principal), "Integrative Models of Microorganism Motility," Sponsored by NSF/NIH, Federal, $37,761.00. (June 2002 - May 2008).

FAUCI, L. J. (Principal), CORTEZ, R. (Co-Principal), Dillon, R. (Co-Principal), Goldstein, S. (Co-Principal), Omoto, C., "Integrative Models of Microorganism Motility," Sponsored by NSF/NIH, Federal, $1,450,000.00. (June 2002 - May 2008).

CORTEZ, R. (Co-Principal), CHAMBERS, J. Q. (Principal), "Accelerating Implementation and Development of Ecosystem Disturbance and," Sponsored by Tulane PhaseII Enhancement Grant, Tulane University, $75,000.00. (2006 - 2007).

CORTEZ, R., "Enhancing the mathematics activities of the SACNAS 2005 conference," Sponsored by National Security Agency, Federal, $75,000.00. (2005 - 2006).

CORTEZ, R. (Principal), "Pan-American Advanced Studies Institute: Mathematical Models of Population Dynamics," Sponsored by NSF, Federal, $85,460.00. (2005 - 2006).

CORTEZ, R. (Co-Principal), "SACNAS/MSRI Workshop on Modern Mathematics: an Introduction to the 2007-08 Programs at the Mathematical Sciences Research Institute," Sponsored by National Security Agency, Federal, $30,000.00. (2005 - 2006).

CORTEZ, R. (Principal), "Faculty Early Career Development Award (CAREER)," Sponsored by NSF, Federal, $485,165.00. (2001 - 2006).

CORTEZ, R. (Co-Principal), "Enhancing the mathematics activities of the SACNAS 2004 conference," Sponsored by National Security Agency, Federal, $34,717.00. (2004 - 2005).

CORTEZ, R. (Principal), "Mathematics Mini-courses for Students at the 2004 SACNAS Conference," Sponsored by NSF, Federal, $14,090.00. (2004 - 2005).

CORTEZ, R. (Co-Principal), "Enhancing the mathematics activities of the SACNAS conference," Sponsored by National Security Agency, $32,000.00. (2003 - 2004).

CORTEZ, R. (Principal), "Mathematics Mini-courses for Students at the SACNAS Conference," Sponsored by NSF, Federal, $15,425.00. (2003 - 2004).

FAUCI, L. J. (Co-Principal), CORTEZ, R. (Principal), GAVER, D. P. (Co-Principal), "Enhancement of the Center for Computational Science," Sponsored by Louisiana Board of Regents Enhancement Award, State, $34,896.00. (2002 - 2003).

FAUCI, L. J. (Principal), CORTEZ, R. (Co-Principal), GAVER, D. P. (Co-Principal), "Livingston Digital Millenium Center for Computational Science at Tulane and Xavier Universities," Sponsored by U.S. Dept. of Energy, Federal, $1,918,000.00. (May 2001 - May 2003).

CORTEZ, R. (Principal), "Impulse Models for Fluid Motion with Flexible Boundaries," Sponsored by NSF, Federal. (1998 - 2002).

CORTEZ, R. (Co-Principal), "Louisiana Board of Regents Enhancement award," Sponsored by Louisiana Board of Regents, State. (1998 - 2001).

FAUCI, L. J. (Co-Principal), CORTEZ, R., Moore, P., "Enhancement of Scientific Computing Equipment," Sponsored by BOR, State, $77,354.00. (June 1999 - May 2001).

CORTEZ, R., "Impulse Methods for Fluid Flow With Immersed Boundaries," Sponsored by NYU Research Challenge Fund, Other. (1997).

SERVICE

Department Service

Committee Member, Mathematics Department Undergraduate Committee. (2012 - 2013).
Committee Member, Mathematics Department Executive Committee. (2006 - 2013, 2014-15).
Committee Member, Mathematics Department Hiring Committee. (January 2012 - June 2012).
Committee Member, Mathematics Department VIGRE Committee. (2002 - 2011).
Committee Member, Mathematics Department Graduate Studies Committee. (2007 - 2009).
Committee Member, Mathematics Department Hiring Committee. (2006 - 2008).
Committee Member, Mathematics Department Personnel Committee. (2005 - 2006).
Committee Member, Mathematics Department Recruitment Committee. (2003 - 2004).
Committee Chair, Mathematics Department Graduate Studies Committee. (2002 - 2004).
Committee Member, Mathematics Department Hiring Committee. (2002 - 2004).
Committee Member, Mathematics Department Personnel Committee. (2002 - 2003).
Committee Member, Mathematics Department Recruitment Committee. (2001 - 2003).
Committee Member, Mathematics Department Undergraduate Studies Committee. (2001 - 2002).
Committee Member, Mathematics Department VIGRE Proposal Committee. (2001 - 2002).
Committee Member, Mathematics Department Computing Committee. (1998 - 2002).
Committee Member, Mathematics Department Recruitment Committee. (1999 - 2000).

School Service

Committee Member, SSE Promotions and Tenure committee. (2010 - June 2012).
Committee Member, SSE Judicial Pool. (2007 - June 2008).

University Service

Faculty Mentor, Tulane Scholars Program. (December 2014 - May 2016).
Committee Member, University Senate. (July 1, 2014 - June 30, 2017).
Committee Member, Teacher Preparation & Certification Program Curriculum Design.
    (September 2014 - September 2015).
Member, Interdisciplinary Committee on Art and Visual Culture (ICAVC). (1/2013 – 12/2014).
Faculty Fellow of the SoHo (Sophomore Honors) dormitory, Tulane University. (2011-2012).
Committee Member, Center for Infectious Diseases Steering Committee. (7/2008 – 8/2012).
Committee Member, Newcomb-Tulane College Dean 5-year Review. (July 2011 - March 2012).
Committee Member, University Senate Information Technology Committee. (2007 - June 2009).
Committee Member, Chief Technology Officer Search. (2008).
Committee Chair, University Senate Information Technology Committee. (2006 - 2007).
Provost Diversity Task Force. (2004 - 2005).
Committee Member, University Senate Information Technology Committee. (2002 - 2004).
Committee Member, University College Grievance Committee. (April 26, 1999 - 2002).

Professional Service

Committee Member, Mathematical Sciences Research Institute (Berkeley) Educational Advisory
    Committee. (2008 - Present).
Committee Member, LONI Allocations Committee. (2006 - Present).
Reviewer, Journal Article, Journal of Computational Physics, SIAM J. Sci. Comput., Phys. Fluids,
    J. Engrg. Math., CAMCoS, others. (1999 - Present).
Editor, Associate Editor, SMAI Journal of Computational Mathematics. (June 2014 - May 2020).
Editor, Associate Editor, SIAM Review (Education Section). (January 2011 - December 2016).
Member, Mathematical Biosciences Institute Diversity Committee. (1/2013 – 12/2015).

Member, Mathematical Biosciences Institute Selection Committee. (November 20, 2013 - November 19, 2015).

Member, Mathematical Association of America Committee on Minority Participation in Mathematics. (January 1, 2013 - December 31, 2014).

Chairperson, SACNAS National Conference Program Committee. (1/2013 – 12/2014).

Member, Berkeley Science Network/Berkeley Science Connections External Advisory Board. (July 2012 - December 2014).

Committee Member, SAMSI National Advisory Committee. (2008 - 2014).

Conference Organizer, Blackwell-Tapia Conference and Awards Ceremony. (January 2014 - November 2014).

Reviewer, Grant Proposal, NSF panel. (September 19, 2014).

Workshop Organizer, ICERM. (August 11, 2014 - August 15, 2014).

Director, Mathematical Sciences Research Institute Undergraduate Program (MSRI-UP). (2007 - July 2014).

Director, Mathematical Sciences Research Institute Undergraduate Program (MSRI-UP). (2007 - March 5, 2014).

Reviewer, Grant Proposal, NSF panel. (November 14, 2013 - November 15, 2013).

Member, Simons Foundation Review Advisory Panel. (January 2011 - December 2012).

Editorial Review Board Member, American Mathematical Monthly. (2001 - December 2012).

Reviewer, Grant Proposal, NSF panel. (December 4, 2012 - December 5, 2012).

Reviewer, Grant Proposal, NSF Panel - DMS. (December 2011).

Committee Chair, Mathematical Sciences Research Institute (Berkeley) Human Resources Committee. (2008 - 2011).

Organizer, Mathematics symposium, SACNAS annual meeting. (1999 - 2011).

Reviewer, Grant Proposal, NSF Panel - DMS. (April 2011).

Reviewer, Grant Proposal, NSF Panel - GK12 program. (August 2009).

Reviewer, Grant Proposal, NSF Panel - UBM program. (May 2009).

Committee Member, American Mathematical Society Books and Journal Donations Steering Committee. (2005 - 2008).

Workshop Organizer, Diversity Workshop, SIAM annual meetings. (2005 - 2008).

Committee Member, Mathematical Sciences Research Institute (Berkeley) Human Resources Committee. (2004 - 2008).

Reviewer, Ad Hoc Reviewer, Ford Foundation Graduate Fellowship Committee. (2005 - 2006).

Reviewer, Grant Proposal, NSF. (2005 - 2006).

Co-chair, Annual Meeting of the Society for Industrial and Applied Mathematics (SIAM), (7/2006).

Program Organizer, Pan-American Advanced Studies Institute: Mathematical Models of Population Dynamics, (July 17, 2006 - July 18, 2006).

Co-Organizer, First Course and Conference in Mathematical Modeling. (January 2005).

Reviewer, Grant Proposal, NSF. (2003).

Committee Member, SIAM Committee on Committees and Appointments. (2001 - 2003).

Seminar Leader, Summer Institute in Mathematics for Undergraduates (SIMU). (2002).

Reviewer, Ad Hoc Reviewer, NSF-NATO Postdoctoral Fellowships. (February 2002).

Committee Member, SIAM Young Mathematician's Anniversary Focus Committee, (2001).

Workshop Organizer, Diversity Workshop, SIAM annual meetings. (1999).

Workshop Organizer, Clifford Lectures and Conference, Tulane University, (November 1999).

Symposium Organizer, Mathematics symposium, SACNAS annual meeting. (1997).

Board Member, SACNAS (Society for Advancement of Chicanos and Native Americans in Science). (1994 - 1996).