Curriculum Vitae

NICOLAE TARFULEA

Department of Mathematics
Purdue University Northwest

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EDUCATION:

Ph.D. in Mathematics, University of Minnesota, August 2004
Thesis: *Constraint Preserving Boundary Conditions for Einstein's Equations*
Advisor: Douglas N. Arnold

M.A. in Mathematics, Pennsylvania State University, 2001
Thesis: *The Hamiltonian Constraint Equation in General Relativity*
Advisor: Douglas N. Arnold

Doctorate in Mathematics, University of Craiova, Romania, 1996
Thesis: *Applications of Operator Theory in Mathematical Physics*
Advisor: Constantin P. Niculescu, Co-advisor: Lucio Boccardo, University of Rome I (Italy)

M.S. in Mathematics, University of Bucharest, Romania, 1990
Thesis: *Aproximately Finite Dimensional C^* Algebras*
Advisor: Serban Stratila

B.S. in Mathematics, University of Craiova, Romania, 1989
Thesis: *Representations of Non-Commutative C^* Algebras*
Advisor: Constantin P. Niculescu

EMPLOYMENT:

Purdue University Northwest/Calumet

Professor of Mathematics, 2014 –

Associate Professor of Mathematics, 2008 – 2014.

Tenure-track Assistant Professor of Mathematics, 2004 – 2008.

University of Minnesota

Graduate Instructor, 2001 – 2003.

Pennsylvania State University

Graduate Instructor, 1999 – 2001.

University of Craiova, Romania

Associate Professor, 1996 – 2004.

Assistant Professor, 1990 – 1996.

VISITING POSITIONS:

Department of Mathematics and Natural Sciences, University of Craiova, Romania, July 1 – 31, 2016, and May 23 – July 6, 2014.

School of Mathematics, University of Minnesota, August 2010 – January 2011.

Institute of Mathematics and its Applications, Minnesota, September 2010 – June 2011.

Universidad Complutense de Madrid, Spain, 2 months, January 1997–March 1997.

Istituto Nazionale di Alta Matematica "Francesco Severi" di Roma, Italy, 12 months, December 1993 – December 1994.

Dipartimento di Matematica "G. Castelnuovo", Universita di Roma "La Sapienza", Italy, 12 months, January - June 1993 and January - June 1992.

RESEARCH INTERESTS:

Numerical Analysis; Partial Differential Equations; General Relativity; Signal Processing. More precisely: finite element methods, numerical relativity, numerical optimization, boundary conditions for differential equations with constraints, nonlinear elliptic equations, reaction-diffusion systems, and compressed sensing.

PUBLICATIONS:

(1) N. Tarfulea, *Boundary Conditions for Constrained Hyperbolic Systems of Partial Differential Equations*, Journal of Hyperbolic Differential Equations, submitted July 2019.
(2) N. Tarfulea, *Initial and Initial-Boundary Value Problems for First-Order Symmetric Hyperbolic Systems with Constraints*, Chapter 9 in Mathematical and Computational Modeling: With Applications in Natural and Social Sciences, Engineering, and the Arts, Wiley, ISBN: 978-1-118-85398-6, pp. 222-254, 2015.
(3) N. Tarfulea, *On boundary conditions for first order symmetric hyperbolic systems with constraints*, Journal of Hyperbolic Differential Equations, vol. 10, no. 4, 725–734, 2013.
(4) N. Tarfulea, *Observability for initial value problems with sparse initial data*, Appl. Comput. Harmon. Anal. 30 (2011), no. 3, 423–427.
(5) D.N. Arnold and N. Tarfulea, *Constrained First Order Hyperbolic Systems and Applications*, WAVES 2011 Conference Proceedings, Pacific Institute for Mathematical Sciences (PIMS), Canada, 2011.
(6) N. Tarfulea, *Well-posed constraint-preserving boundary conditions for the AA formulation of Einstein's equations*, Journal of Mathematical Analysis and Applications, vol. 359 (2009), no. 2, 711–721.
(7) N. Tarfulea, *Positive radial symmetric solutions to an exterior elliptic Robin boundary-value problem and application*, Nonlinear Analysis: Theory, Methods & Applications, vol. 71 (2009), no. 5-6, 1909–1915.
(8) D. Motreanu and N. Tarfulea, *Quasilinear differential equations in exterior domains with nonlinear boundary conditions and application*, Electron. J. Differential Equations 2009, No. 138, 13 pp.
(9) I. Babuška, Victor Nistor, and N. Tarfulea, *Generalized Finite Element Method for Second Order Elliptic Operators with Dirichlet Boundary Conditions*, J. Comput. Appl. Math., vol. 218 (2008), pp. 175–183.
(10) I. Babuška, Victor Nistor, and N. Tarfulea, *Approximate and low regularity Dirichlet boundary conditions in the Generalized Finite Element Method*, Mathematical Models & Methods in Applied Sciences (M3AS), vol. 17 (2007), no. 12., pp. 2115–2142.
(11) D.N. Arnold and N. Tarfulea, *Boundary conditions for the Einstein-Christoffel formulation of Einstein's equations*, Electron. J. Differ. Equ. Conf., vol. 15 (2007), pp. 11–27.
(12) N. Tarfulea, *Existence of the minimal positive solution of some nonlinear elliptic systems when the nonlinearity is the sum of a sublinear and a superlinear terms*, Appl. Math. Mech. 21 (2000), no. 3, 283–290.
(13) C.P. Niculescu and N. Tarfulea, *Solvability of an elliptic system with discontinuous nonlinearity and L^1 data*, Comm. Appl. Nonlinear Anal. 6 (1999), no. 3, 49–58.
(14) N. Tarfulea, *Positive solutions of some nonlinear elliptic equations involving the p-Laplacian with Neumann boundary condition*, Rev. Roumaine Math. Pures Appl. 44 (1999), no. 1, 143–151.
(15) A. Leonte and N. Tarfulea, *The non-existence of a positive solution for some nonlinear elliptic problems in unbounded domains*, Sci. Math. 2 (1999), no. 1, 95–97.
(16) N. Tarfulea, *On the positive solution of a class of semilinear elliptic equations on a bounded domain*, Studia Univ. Babes-Bolyai Math. 42 (1999), no. 2.
(17) N.P. Constantin and N. Tarfulea, *A class of Dirichlet boundary value problems which admit infinitely many solutions*, Sci. Math. 1 (1998), no. 3, 383–387.

(18) N. Tarfulea, *On a reaction-diffusion system involving the critical exponent*, Rev. Mat. Complut. 11 (1998), no. 2, 461–472.
(19) N. Tarfulea, *Positive solutions of nonlinear elliptic equations involving the p-Laplacian and indefinite nonlinearities*, Panamer. Math. J. 8 (1998), no. 3, 31–42.
(20) N. Tarfulea, *Existence of positive solutions of some nonlinear Neumann problems*, An. Univ. Craiova Ser. Mat. Inform. 23 (1998), 9–18.
(21) N. Tarfulea, *About the generalized Jacobians*, An. Ştiinţ. Univ. Ovidius Constanţa Ser. Mat. 5 (1997), no. 1, 139–146.
(22) N. Tarfulea, *About some semilinear elliptic equations in a bounded convex domain with Dirichlet boundary conditions*, Stud. Cerc. Mat. 48 (1996), no. 5-6, 393–407.
(23) N. Tarfulea, *Positive solution of some nonlinear elliptic equation with Neumann boundary conditions*, Proc. Japan Acad. Ser. A Math. Sci. 71 (1995), no. 7, 161–163.
(24) N. Tarfulea, *Existence and behavior of positive radial symmetric solutions for the problem* $-\Delta u = \lambda u|u|^{q-1} + u|u|^{p-1}$ *in* $R^N (N \geq 2)$, An. Univ. Craiova Ser. Mat. Inform. 21 (1995), 28–37.
(25) N. Tarfulea, *One result of Cauchy-Lagrange type*, An. Univ. Timişoara Ser. Mat.-Inform. 32 (1994), no. 2, 123–127.
(26) N. Tarfulea, *Estimates for positive solutions of some nonlinear elliptic equations*, An. Univ. Craiova Ser. Mat. Inform. 19 (1994), 70–73.

PREPRINTS:

(1) *Observability for Initial Value Problems with Sparse Initial Data*, 2010, arXiv:1004.3583.
(2) *Approximate Dirichlet Boundary Conditions in the Generalized Finite Element Method*, IMA Preprint Series (2006), no. 2096. With I. Babuska and V. Nistor.
(3) *Boundary Conditions for the Einstein-Christoffel Formulation of Einstein's Equations*, IMA Preprint Series (2005), no. 2065. With D.N. Arnold.
(4) *Constraint Preserving Boundary Conditions for Hyperbolic Formulations of Einstein's Equations*, 2005, gr-qc/0508014.
(5) *The Design of a Microactuator*, IMA Preprint Series (2001), no. 1752-6.
(6) *On the ratio of the first two eigenvalues of the Laplacian*, Matarom 2 (1992), Laboratoire d'Analyse Numerique, Univ. Pierre et Marie Curie (Paris VI).

(External) GRANTS:

Simons Foundation Grant, *Constrained Problems, Numerical Solutions, and Sparse Observability*, 2011-2016. Sole Investigator. Status: funded ($35,000).

Institute for Mathematics and its Applications (IMA) Grant for participating in the IMA Thematic Year on Simulating Our Complex World: Modeling, Computation and Analysis, 01.2011-06.2011, $12,000.

North West Indiana Computational Grid (NWICG) Grant, *Visualization via Compressed Sensing: The Quest for a Dictionary*, 2009. Sole Investigator. Status: funded ($15,000).

Grant CNCSIS D4 (sponsored by the World Bank), *Dynamical Systems and Evolution Equations*, June 1998–June 2000. One of five investigators. Status: funded.

CNCSU Contract (Cod 10/1998), *Applications of variational, topological, and statistical methods in studying evolution problems*, October 1998–August 1999. One of nine investigators. Status: funded.

CNCSU Contract (Cod 7006/16C/195/1997), *Topological and Variational Methods for Evolution Equations*, June 1997–June 1998. One of six investigators. Status: funded.

CNCSU Contract (Cod 5006/16C/447/1996), *Applications of topological and variational methods in studying problems from mathematical physics*, June 1996–June 1997. One of five investigators. Status: funded.

CNCSU Contract (Cod 4006/77CA2/1995), *Contributions to group theory and nonlinear analysis. Applications to ergotic theory, combinatorics, geometry, and equations of mathematical physics*, June 1995–June 1996. One of nine investigators. Status: funded.

(more information about the last five grants at http://www.inf.ucv.ro/publications/contracts.php)

(Selected) TRAVEL, SUMMER, AND OTHER GRANTS/AWARDS:

PNW Teaching Incentive Program (TIP) Award for instructional excellence, 2019.

PRF International Travel Grant, 2019 ($1,000), 2017 ($1,300), 2015 ($1,000).

PNW Proposal Submission Grant, 2018 ($3,000).

PUC Faculty Summer Grant, 2016 ($3,000), 2011 ($3,000), 2005 ($5,000).

PUC Summer Proposal Development Grant, 2014 ($2,500), 2008 ($ 3,200).

PUC Proposal Development Grant, Fall 2013-Spring 2014, $2,500.

Travel Support, IMA-University of Minnesota, October 22-24, 2014, $550; AMMCS-2013, Wilfrid Laurier University, Waterloo, Canada, August 26-30, 2013, $1,500; University of Texas at El Paso, December 11–15, 2006; Pacific Institute for Mathematical Sciences, 2005; University of Texas - Pan American, 2005; Institute for Pure and Applied Mathematics - UCLA, 2005 ($1,350); NSF Travel Award for participating to the Seventh Mississippi State – UAB Conference on Differential Equations & Computational Simulations, Birmingham, AL, November 1–3, 2007 ($ 750); NSF Travel Award for participating to the Sixth Mississippi State – UAB Conference on Differential Equations & Computational Simulations, Mississippi State University, May 13–14, 2005 ($500).

Invited semi-plenary speaker at The International Conference on Applied Mathematics, Modeling and Computational Science (AMMCS), Waterloo, Ontario, Canada, August 26-30, 2013 (see http://www.ammcs2013.wlu.ca/plenary-speakers.html).

Invitation and grant to participate in the 2010-2011 Institute of Mathematics and its Applications (IMA) thematic year on *Simulating Our Complex World: Modeling, Computation and Analysis*, September 1, 2010 – June 30, 2011.

Doctoral Dissertation Fellowship Award, awarded by the Graduate School, University of Minnesota, September 2003–August 2004, $ 15,500.

Summer Research Fellowship, School of Mathematics, University of Minnesota, 2003, $2,700.

Citation for Excellence in Teaching, awarded by the School of Mathematics, University of Minnesota, 2003, $ 150.

Summer Research Fellowship, Eberly College of Science, Penn State University, 2001 ($3,760), 2000 ($5,220), 1999 ($1,500).

Graduate Teaching Award, awarded by the Department of Mathematics, Penn State University, 2001, $ 250.

The Vollmer–Kleckner Scholarship Award in Science, awarded by the Eberly College of Science, Penn State University, August 2000–June 2001, $ 6,300.

Graduate School Award, Penn State University, 1999, $ 2,500.

Invitation and grant to participate to the *Third School on Nonlinear Functional Analysis and Applications to Differential Equations*, International Centre for Theoretical Physics, Trieste, Italy, October 1998. (declined)

Honor Salary for Excellence in Teaching and Research, awarded by the Department of Mathematics and Informatics, University of Craiova, Romania, September 1996–August 1998 (15% increase of the regular stipend).

Research Fellowship, awarded by the National Institute of Mathematics "F. Severi" of Rome, Italy, December 1993–December 1994, $ 18,000.

TEMPUS Fellowship, awarded by the TEMPUS (EU Program) Fellowship Office, University of Rome I, Italy, January 1993–June 1993 ($ 6,000) and January 1992–June 1992 ($ 6,000).

Honor Scholarship, awarded by the University of Bucharest, Romania, September 1989–June 1990.

National Scholarship Award, awarded by the University of Craiova, Romania, September 1987–June 1989.

Finalist at the National Olympiad of Mathematics and member of the enlarged team of Romania for the International Olympiad of Mathematics, 1981, 1982, 1983, and 1984.

(Selected) TALKS:

The Ninth Congress of Romanian Mathematicians, Galati, Romania, June 28 - July 3, 2019.

Eleventh Conference of the Euro-American Consortium for Promoting the Application of Mathematics in Technical and Natural Sciences, Albena, Bulgaria, June 20 - 25, 2019.

The 10th Conference of the Euro-American Consortium for Promoting the Application of Mathematics in Technical and Natural Sciences (AMITANS) organized in cooperation with Society for Industrial and Applied Mathematics (SIAM), Albena, Bulgaria, June 20 - 25, 2018.

AMS Special Session on New Trends in Numerical Methods for Partial Differential Equations: Theory and Applications, University of Michigan, October 20 - 21, 2018.

Ninth Conference of the Euro-American Consortium for Promoting the Application of Mathematics in Technical and Natural Sciences, Albena, Bulgaria, June 21 - 26, 2017.

PNW MSCS Colloquium, PNW, April 20, 2017.

The 11th AIMS Conference on Dynamical Systems, Diff. Eqns. and Applications, Orlando, Florida, July 1 - 5, 2016.

The Eighth Congress of Romanian Mathematicians, Iasi, Romania, June 26 - July 1, 2015.

The 1st Annual Meeting of SIAM Central States Section, Missouri University of Science and Technology, April 11-12, 2015.

The 10th AIMS Conference on Dynamical Systems, Differential Equations and Applications, Madrid, Spain, July 7 - July 11, 2014.

PUC MCSS Colloquium, February 13, 2014.

The International Conference AMMCS 2013, Waterloo, Ontario, Canada, August 26 - 30, 2013.

Special Session on New Computational Techniques for Applied Problems in Science and Engineering, Waterloo, Ontario, Canada, August 26 - 30, 2013.

AMS Special Session on Numerical Methods for Geometric Partial Differential Equations, Iowa State University, April 26 - 28, 2013.

International Conference on Theory, Methods and Applications of Nonlinear Equations, Texas A&M University, Kingsville, USA, December 17 - 21, 2012.

The 9th AIMS Conference on Dynamical Systems, Differential Equations and Applications, Orlando, Florida, USA, July 1 - 5, 2012.

AMS meeting at the University of Utah, 10/21 - 23/2011.

AMS meeting at the University of Nebraska Lincoln, 10/14 - 16/2011.

10th International Conference on Mathematical and Numerical Aspects of Waves (Waves 2011), Simon Fraser University, Vancouver, Canada, 07/25 - 29/2011.

IMA workshop "Large-scale Inverse Problems and Quantification of Uncertainty," June 6 - 10, 2011.

AMS Special Session on Nonlinear PDEs and Applications, University of Illinois at Urbana-Champaign, March 27 - 29, 2009.

Penn State University, October 27, 2008.

World Congress of Nonlinear Analysts, Orlando, Florida, July 2 - 9, 2008.

Northern Illinois University, DeKalb, February 1st, 2008.

SIAM Conference on Analysis of Partial Differential Equations, December 10 - 12, 2007, at the Hilton Phoenix East/Mesa, Mesa, Arizona.

Seventh Mississippi State - UAB Conference on Differential Equations & Computational Simulations, Birmingham, AL, November 1 - 3, 2007.

Finite Element Methods in Engineering and Science (FEMTEC 2006), University of Texas at El Paso, December 11 - 15, 2006.

AMS Special Session on Boundary Value Problems for Differential Equations with Applications, University of Cincinnati, October 21 - 22, 2006.

AMS Special Session on Analysis and Geometry of Non-linear Evolution Equations, University of Notre Dame, April 8 - 9, 2006.

29th Annual Texas Partial Differential Equations Conference, University of Texas at Arlington, March 25 - 26, 2006.

AMS Special Session on Partial Differential Equations with Applications, University of Oregon, November 11 - 13, 2005.

The Sixth Mississippi State - UAB Conference on Differential Equations and Computational Simulations, Mississippi State University, May 13 - 14, 2005.

BIRS Workshop on Numerical Relativity, Pacific Institute for the Mathematical Sciences, April 16 - 21, 2005.

28th Annual Texas Partial Differential Equations Conference, University of Texas - Pan American, March 19 - 20, 2005.

AMS Session on Partial Differential Equations, Atlanta, GA, January 5 - 8, 2005.

AMS Sectional Meeting, Northwestern University, Evanston, IL, October 22 - 23, 2004.

Finite Element Circus, Syracuse University, October 15 - 16, 2004.

Applied Math. Seminar, University of Minnesota, April 1, 2004.

North Dakota State University, March 23, 2004.

Purdue University Calumet, February 26, 2004.

California State University Hayward, February 19, 2004.

AMS Special Session on PDEs and Applications, Phoenix , AZ, January 7 - 10, 2004.

Finite Element Circus, Cornell University, November 7 - 8, 2003.

University of Minnesota, October 1, 2003.

University of Notre Dame, Conference on PDE and Applications, August 14 - 17, 2003.

Minnesota PDE Seminar, April 30, 2003.

Syracuse University, March 31, 2001.

PDEs and Numerical Methods Seminar, Penn State University, November 28, 2000.

University of Minnesota - IMA Mathematical Modeling in Industry Workshop, July 19 - 28, 2000.

Penn State University, March 15, 1999.

The 4th Romanian-French Math.Conference, Metz, France, July 1998 (poster).

The Second Joint Romanian-Hungarian Conference on Modern Applied Mathematics, Ilieni, Romania, June 1997.

WORKSHOPS/CONFERENCES NOT LISTED ELSEWHERE:

Finite Element Circus, Purdue University West Lafayette, March 22 - 23, 2019.

The Mathematical Congress of the Americas, Centre Mont-Royal and McGill University, Montreal, Canada, July 24 - 28, 2017

AMS Fall Central Sectional Meeting, Univ. of St. Thomas, Minneapolis, MN, October 28 - 30, 2016.

IMA-University of Minnesota, October 22 - 24, 2014.

IMA workshop "Structure-Preserving Discretizations of Partial Differential Equations," IMA-University of Minnesota, October 22 - 24, 2014.

Finite Element Circus & Rodeo, Louisiana State University, March 8 - 10, 2013.

Conference in honor of R.R. Coifman, P.W. Jones, and V. Rokhlin: Challenges in Geometry, Analysis, and Computation: High-Dimensional Synthesis, Yale University, June 4 - 6, 2012.

IMA workshop "High Performance Computing and Emerging Architectures," 01/10 - 14/2011.

IMA workshop " Computing in Image Processing, Computer Graphics, Virtual Surgery, and Sports," 03/7 - 11/2011.

IMA workshop "Societally Relevant Computing," 04/11 - 15/2011.

IMA workshop "Large-scale Inverse Problems and Quantification of Uncertainty," 06/6 - 10/2011.

Computing with Uncertainty: Mathematical Modeling, Numerical Approximation and Large Scale Optimization of Complex Systems, IMA, October 18 - 22, 2010.

Numerical Solutions of Partial Differential Equations: Novel Discretization Techniques, IMA, November 1 - 5, 2010.

Numerical Solutions of Partial Differential Equations: Fast Solution Techniques, IMA, November 29 - December 3, 2010.

Finite Element Circus, University of Minnesota, November 5 - 6, 2010.
8th Mississippi State - UAB Conference on Differential Equations & Computational Simulations, Mississippi State University, May 2009.

PCA Workshop III: Relativistic Astrophysics, Institute for Pure and Applied Mathematics (IPAM) - UCLA, May 2005.

Finite Element Circus, Wayne State University, March 2003.

Gravitation and General Relativity, IMA-University of Minnesota, August 2002.

27th Graduate Student Conference, Syracuse University, March 2001.

Finite Element Circus, Rutgers University, October 2000.

IMA Mathematics Modeling in Industry Workshop, University of Minnesota,
July 2000.

Advanced workshop in finite element and multigrid methods, Penn State University, June 2000.

Finite Element Circus, Cornell University, October 1999.

CONFERENCE ORGANIZER:

Main co-organizer of The V AMMCS International Conference, Waterloo, Canada, August 18 - 23, 2019.

Minisymposium on *Numerical and Analytical Techniques with Applications in Wave Propagation*, The V AMMCS Congress, Waterloo, Ontario, Canada, August 18 - 23, 2019 (with Eduard Kirr – University of Illinois at Urbana-Champaign and Daniel Onofrei – University of Houston).

Special Session on Recent Advances in Mathematical and Computational Aspects of Wave Propagation, The IV AMMCS International Conference, Waterloo, Canada, August 20 - 25, 2017 (with Eduard Kirr - University of Illinois at Urbana-Champaign).

Main co-organizer of The IV AMMCS International Conference, Waterloo, Canada, August 20 - 25, 2017.

Minisymposium on *Wave Propagation And Applications*, The 2015 AMMCS-CAIMS Congress, Waterloo, Ontario, Canada, June 7 - 12, 2015 (with Eduard Kirr – University of Illinois at Urbana-Champaign and Catalin Turc – New Jersey Institute of Technology).

AMS Special Session on *Numerical Methods for Geometric Partial Differential Equations*, Spring Central Sectional Meeting Iowa State University, Ames, IA, April 27 - 28, 2013 (with Gerard Awanou – University of Illinois at Chicago).

AMS Special Session on *Differential Equations and Applications*, Macalester College, St. Paul, MN, April 2010 (with C. Turc – Case Western Reserve University).

AMS Special Session on *Finite Element Methods and Applications*, Indiana University Bloomington, April 2008 (with Sheng Zhang – Wayne State University).

AMS Special Session on *Wave Propagation from Mathematical and Numerical Viewpoints*, DePaul University, Chicago, October 5 - 6, 2007 (with Gabriel Koch – University of Chicago and Catalin Turc – Caltech).

MSCS Colloquium organizer, Fall 2008–.

OTHER PROFESSIONAL SERVICE:

Reviwer for: Applied Numerical Mathematics, Journal of Computational and Applied Mathematics, International Journal of Mathematics and Mathematical Sciences, Journal of Global Optimization, Journal of Applied Mathematics, Mathematical Reviews. I also reviewed a number of books.

Undergraduate research mentor:

- In Spring 2018 I mentored a PNW team of undergraduate students (Allen Murray, Ethan O'Riley, and Jered Pawlak) for participating in the international modeling competition Student Competition Using Differential Equation Modeling (SCUDEM). Our PNW team performed admirably and won the local site (Saint Mary's College, Notre Dame, IN) level with their project "Modeling the Cool Kids." Allen Murray and Ethan O'Riley also won (with high marks) the first place and second place, respectively, of the MathBowl (competition within SCUDEM).
- Indiana Space Grant: *Collective Behavior and Emergence of Consensus with Processing Delay.* Students involved: Daniel Boulos, Jacob Brunetti, Natasha Naumovski, and Amanda Neel. Fall 2016-Spring 2017.
- Indiana Space Grant: *Self-Organized Dynamics and Emergence of Consensus.* Students involved: David Fisher, Jacob Lauritzen, and Daniel Sicinski. Spring 2015-Fall 2016.
- Indiana Space Grant: *Numerical Detection of Hot-spots for Heat Equations.* Students involved: Jacob Dutton, Devin Whitten, and Kyle Jang-Yul Ziga. Spring 2014.
- PUC Proposal Development Grant: *Nonconforming Generalized Finite Element Method for Parabolic Interface Problems.* Students involved: Devin Whitten and Kyle Jang-Yul Ziga. Fall 2013-Spring 2014.
- Undergraduate Research Grant Project (URGP): *Differential Equations with Range or Sparse Initial Data.* Students involved: Jaime Alvarez and Kristina Schafer. Fall 2012-Spring 2013.
- URGP: *Mathematical Model for a Micro-actuator.* Students involved: Stephen Buita, Carl Loucius, and Wei Shang. Spring 2012-Spring 2013.
- URGP on Compressed Sensing. Students involved: Vincent Caffarini and Adam Xia. Fall 2009 – Spring 2010.
- NWICG Grant: *Visualisation via Compressed Sensing: The Quest for a Dictionary.* Students involved: Jeffery Hein and Brian Hunter, June 2009 – August 2009.
- URGP: *On the "Hot-spots" Conjecture from Computational Perspective.* Students involved: Xi Lu, Jayme Peacock, Shivendra Sirohi and Hao Xu. Fall 2008 – Spring 2009.
- URGP: *The Design of a Micro-pump.* Students involved: Xi Lu, Hung Nguyen and Shivendra Sirohi. Fall 2007 – Spring 2008. Their results were presented to the Argonne Symposium for Undergraduates (November 2, 2007) and the LSAMP/AGEP Conference,

Indiana University Bloomington (November 9, 2007). They also won the 2008 PUC Student Research Award ($ 300) for their project.

- URGP: *Ordinary Differential Equations with Range Initial Data.* Students involved: Catalin Constantin and Jayme Peacock. Spring 2007.
- URGP: *Qualitative and Numerical Analysis of a Mathematical Model for a Micro-pump.* Students involved: Jessica Barker, Carlos Mendoza, Siddmarth Pachauri and Mark Miller. Spring 2006.

Judge (Judge ID: NT8351) for the 2013 Sigma Xi Student Research Showcase , March 18-22, 2013. I was assigned to eight presentations on mathematics and computational science. This competition attracted over 200 students from North America, South America, Europe, and Asia.

Thesis committee member: "Modeling and Hover Control of a Double-rotor Micro Flying Robot," by Yongheng Zhang ; advisor: N. Houshangi; August 2009.

Organizer of the Problem Solving Competition at the PUC campus 2006-2010 (see http://ems.calumet.purdue.edu/tarfulea/psc/frontpage.htm).

Co-organizer of the Math Day for the participants to the 2009, 2010, and 2012 Summer PUC Engineering Program.

Mentor of the PUC team for the Indiana College Mathematics Competition (2005-2010).

Co-organizer of the Doctoral Dissertation Seminar, University of Minnesota, 2003-2004.

Project with Eastman Kodak: team work on *Designing a Microactuator*, IMA Mathematics Modeling in Industry Workshop, University of Minnesota, July 2000.

Teaching with Technology Project, Pennsylvania State University, 2000-2001.

ROTC Tutoring Program, Pennsylvania State University, 1999-2000.

Founder Member of the Centre for Nonlinear Analysis and its Applications (CNNA), University of Craiova, 2000.

National Mathematical Competitions Program, University of Craiova, 1995-1998.

SERVICE:

University/Department Promotion and Tenure Committees, PNW Strategic Planning Task Force, Research Board, PUC University Senate, Environmental Partnership, Academic Support Services Committee, PUC EMS Engagement Committee, PUC CEMS Faculty Advisory Council, Student Research Advisory Council at PUC, PUC International Programs Advisory Board, Departmental Graduate Study Committee, hiring committees, PUC EMS Strategic Planning Committee, MSCS Course Committees.

AFFILIATIONS: American Mathematical Society (AMS), Society for Industrial and Applied Mathematics (SIAM), Sigma Xi, Mathematical Association of America (MAA).